CLOOS
SCHWEISSTECHNIK

GLC 503 QUINTO
Version Profi,
V 1.60, V 1.70 and V1.80

MIG/MAG Welding

*Machine**OPERATING INSTRUCTIONS***
and SPARE PARTS LISTS

PLEASE KEEP SAFELY FOR FUTURE REFERENCE

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Operating instructions

MIG/MAG Welding Machine
GLC 503 QUINTO
Version Profi
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english

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Spare parts lists

Spare parts lists

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A C H T U N G !

Vor der ersten Inbetriebnahme ist diese Bedienungsanleitung von allen Personen, die mit dem Gerät arbeiten werden, sorgfältig durchzulesen und die Kenntnisnahme schriftlich zu bestätigen.

Die Bedienungsanleitung ist so aufzubewahren, daß alle Schweißer und Wartungspersonen sie jederzeit einsehen können !

Der beste Aufbewahrungsort ist das Schweißgerät selbst.

W A R N I N G !

Prior to the first commissioning, all persons who are involved with this machine should read this operating instruction manual carefully and confirm that they have done so in writing.

Please keep the operating instruction manual easily accessible for all welders and service staff!

The best place is the welding machine itself!

ATTENTION !

Avant la première mise en service, toutes les personnes qui utilisent ce poste doivent lire soigneusement le manuel d'opération et confirmer ceci par écrit.

Veuillez garder le manuel d'opération de sorte que tous les soudeurs et personnels de service y aient accès !

La meilleure place est le poste de soudage.

EN50199:1995

Appendix A (information)

Installation and use
The user is responsible for the installation and operation of the welding machine according to the manufacturer's instructions. If there is electromagnetic interference, the user is responible for finding a solution with the aid technically of the manufacturer of the welding machine, e.g. earthing of the weld current circuit, electromagnetic screening and inlet filter.

A.1 Evaluation of the area
Before installing the welding machine, the user has to evaluate any possible electromagnetic problems in the surrounding area. The following must be taken into consideration:

a) Other mains supply lines, control lines, signal and telecommunication lines above, below and next to the welding machine.
b) Radio and TV broadcasting station and receiver.
c) Computer and other control units.
d) Safety devices, e.g. protection for commercial equipment.
e) Health of persons in vicinity, e.g. if using pacemakers and hearing aids.
f) Units for calibration or measement.
g) Resistance to interference of other equipment in the surrounding area. The user must ensure that other equipment used in the vicinity is electromagnetically compatible. This may require additional safety measures.
h) The time of day when welding or other activities are being carried out.

The extent of the surrounding area to be considered depends on the construction of the building and other activities which take place there and may exceed the boundaries of the property.

A.2 Procedure to reduce emissions

A.2.1 Mains supply
The manufacturer recommends that the welding equipment is connected to the mains supply. Where there is some interference, additional safety precautions may be necessary, i.e. filter for the power supply.

A.2.2 Maintenance of the welding equipment
Regular maintenance intervals are recommended by the manufacturer.

A.2.3 Weld cables
Welding cables should be as short as possible and should be run close together on or near to the floor.

A.2.4 Potential equalization
The electric connection of all metal parts in and near a welding machine should be taken into account. The metal parts connected to the workpiece may increase the risk of an electric shock if the welder touches these metal parts and the electrode at the same time. The welder should be protected against all these connected metal parts.

A.2.5 Earth connection of workpiece
It must be ensured that earthing of the workpiece does not increase the risk of accident to the user or causes damage to other electrical equipment.

A.2.6 Screening
Selective screening of other cables and equipment in the vicinity may reduce radiation. Screening of the complete welding equipment may be considered in special situations.

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I. Safety specifications

1. General information

Warning!
This is a class A equipment which may cause radio interferences in residential areas. In such a case the operator may be asked to take adequate steps on his account.

The GLC 503 QUINTO Profi machine with CK 78 D is built according to EN 60 974-1. It corresponds to the latest "state of the art" engineering and its reliability is proven. It must be operated by trained personnel in accordance with the following instructions to provide safe and efficient operation.

The machine is not suitable for thawing pipelines.
- Fire risk !
Flammable gases or gases which induce a chemical reaction, such as Acetylene, Propane, pure Hydrogen, pure Oxygen are prohibited.

Please note the following!
- Safety regulations VBG 15
- Safety regulations VBG 4
- Fire protection rules
- Welding and maintenance to be carried out by qualified personnel only.
- The machine must be switched-off and disconnected for all maintenance work.
- Repair of electronics to be carried out by service personnel only. If repair work is carried out by unauthorized persons and safety regulations are not adhered to, the warranty becomes invalid.

2. Particular information for welding

2.1 Personal protection (rays, gases, vapours)
— When welding, dry protective clothing, apron, helmet and gloves as well as solid shoes should be worn.
— Use a protective shield or helmet with glass, with DIN marking, outside clear, inside tinted.
— Protect other persons in the vicinity of the welding area from UV rays and spatters by suitable, non-flammable partition walls.
— Always wear safety glasses if you are in an area where welding takes place.
— Wear safety glasses with side protection when you are welding or when removing slag.
— Caution! UV rays are released during welding. Protect body and particularly the eyes. Keep protective ointment and eye drops available.
— All metal vapours are toxic! Be careful with alloys which contain lead, cadmium, copper, zinc, nickle, chrome, berillium.
— Parts, cleaned with chlorinated agents, cause the toxic gas phosgen to form in the arc.
Caution Risk of poisoning in narrow places !
If shielding gas hoses are not tight or the shielding gas valve gets caught unintentionally, shielding gas may escape to such an extent that the oxygen content of the inhaled air decreases; symptoms of poisoning appear which may lead to unconsciousness and suffocation. Sufficient fresh air must be provided! Please check the gas supplying parts at regular intervals.
— Sufficient fresh air must be provided. Fume extraction equipment should be used.
— Railings must be fitted if the working place is on a platform. If necessary, a safety belt is recommended to protect against a sudden fall.

2.2 Fire prevention (explosion)
— Remove all flammable materials around the welding place or cover these with a non-flammable material.
— Hot slag or spatter might cause fires if in contact with flammable materials.
— Only use shielding gases suitable for welding, such as Argon, CO_2 and Argon and CO_2 or Argon, CO_2 and O_2 mixtures.
Never use flammable gases like Acetylene, Propane, Hydrogen or fire supporting gases such as Oxygen.
— Never weld on drums, tanks or similar containers unless they have been thoroughly cleaned and you are sure that no toxic, flammable or explosive vapour can develop.
— Fire fighting agents such as water or sand or a fire extinguisher should always be available.
— Confined spaces must have a free passage allowing escape in case of danger.
— Please observe the weld area and its surroundings when welding has finished. Fire may break out later due to smoldering.

2.3 Electrical danger (current, voltage)
Pacemakers
Wearers of pacemakers may potentially by at risk from arc welding. When MIG/MAG welding the risk is from magnetic fields and when TIG welding from high voltage pulses of the arc ignition units.

As there are several versions of pacemakers, the situation must be clarified with the relevant pacemaker manufacturers or their representatives (hospital etc.).

— Switch off the welding machine when not in use to prevent any electrical risk.

Warning! The terminal voltage of the welding machine may be up to 113V= or 48V~!

— If you have to stand on metal or in a wet area during welding, insulation with suitable dry materials is required.
— Avoid contact with wet or conductive metal parts; wear dry clothing.
— Always maintain correct insulation of cables, plugs and welding torches. Do not overload these parts.
— Keep everything dry, including clothing, welding area, cables and welding machine. Repair immediately any faulty water cooling lines.
— Welding machines may only be used if all covers are present and correctly installed.
— Although the machine is marked “S” (approved for welding in environments with increased electrical hazard), the power source itself may not be installed here, because of the mains voltage of 400 V; only the welding torch and the wire drive unit are permitted at such places.
— Before any work is carried out inside the power source, the mains switch must be switched-off and the mains plug disconnected.
After disconnecting the mains plug, wait at least 2 minutes until the capacitors have reached safe values.
— Be careful when changing the wire coils. Switch off the machine so that the switching command cannot be initiated.
— Lock the wire coil holder, by turning the locking button to prevent the wire coil becoming loose.

Wire coil support

II. General product description

1. Application possibilities and restrictions

The transistorized MIG/MAG pulsed arc welding machine type GLC 503 QUINTO, version Profi with wire drive unit type CK 78 D is a welding machine with micro computer control and a new air cooled power part with extremely quick regulation due to particularl switch controller technology. Outstanding welding features and low power losses result from this. Aimed drop deposition with a highest possible spatter reduction when welding with Argon and Argon rich mixed gases with max. 20% CO_2 part. It can be welded pulse free with all arc kinds under Argon, Argon O_2 mixed gases with multicomponent mixed gases and under pure CO_2.

Remarkable features of the wire drive units are the precise rotation control (tacho control) and high motor power (100 W) with four quadrant regulation (D).

2 + 2 roller system and 4 roller system guarantee safe, slip-free and low abrasion wire transport. The adjustment of the counter pressure is reproducible and comfortable in handling.

The arc burns between wire and workpiece under shielding gases (MAG = Metal active gas and MIG = Metal inert gas procedure).

The wire electrode continuously unwound off the reel until a reel is used up. The coil weight is 15 kgs with steel and 4 ... 5 kgs with Aluminium.

The wire thickness and welding torches to be used depend on material thickness and seam shape.

Power sources and wire feed are in separate housings connected by a cable assembly. The complete system is mounted on four rubber tyred wheels.

The machine is connected to a three phase current supply. Direct current is available at the outlet.
The machine is set up for manual, mechanical and robot MIG/MAG welding all metals. Manual d.c. TIG welding with lift-arc ignition is possible.
The machine is suitable for welding all kind of flux cored wire electrodes.

The machine is not suitable for thawing pipelines. - Fire risk! -

2. Technical data:

Input:	
Nominal input voltage	3x400V~
Nominal frequency	50Hz
(special voltages and 60Hz frequency are possible)	
Input - peak current	44A
Input - continuous current	37A
Slow flow fuse	50A
Power supply cable	10mm^2
Input constant power	25,6kVA
Power factor cos Phi	0,96
Output:	
Max. open circuit voltage	70V
Welding range for MIG/MAG	40A/12V-550A/47V
Duty cycle 100%	500A/39V
Duty cycle 60% (10min.)	550A/41,5V
Type of protection	IP 21
Type of cooling	F
Insulation class	F (155^{0}C)
Dimensions LxWxH power source	1245x470x930mm
Weight power source	190kg
Dimensions LxWxH wire drive	680x410x235mm
Weight wire drive unit	24kg
Water cooling of torch	2,0 l/min. bei 3,0 bar (30m WS)
Continuous noise level at a hight of 1.6m and a distance of 1 m fron the machine:	
Machine noise when switched on	68 dB (A)
Arc noise at max. capacity according to DIN 45 635, part 1	85 dB (A)
Wire feed infinitely adjustable	0 ... 30m/min.

- Permission EN 60 974-1
- The machine corresponds to the machine rules (98/37/EG), the low voltage rules (73/23/EWG) and the rules for electromagnetic compatibility (89/336/EWG).
- The machine is approved for welding in environments with increased electrical hazard and is marked with the letter “S“.
- Mains voltage compensated ± 10 %.
- Calculator control with powerful processor (SAB 80 C 166)
- Comfortable, clear operating design with selection push buttons and handwheel adjustment for setting all values. Clear indication of all values in physical units on the display.

- Memory of 255 complete parameter sets incl. shunt parameters (lists), which can be selected manually or via binary code.
- Control of parameters as an option by analogue voltages or serial coupling.
- List selection, using the existing analogue pilot voltages of a robot control.
- Optimum ignition properties due to ignition routines (being matched to specific material or gases).
- Welding start and end crater filling via special program.
- Infinitely variable adjustment of electronic choke when short arc welding.
- Special spatter reduction when CO_2 welding.
- Changing slope of characteristic curve when welding without pulse.
- Flank adjustment when pulsed arc welding.
- U/I (voltage/current) and I/I (current/current) regulation with stabilization for pulse technique.
- Measured value indication for instantaneous values with hold function.
- Graphic display of current and voltage.
- Errors shown in plain text on the display.
- Protection against unauthorized intervention in parameter selection by means of key-operated switch.
- Interval shut down of fan and cooling water pump.
- Water flow switch for the torch cooling circuit.
- Minimum downtime due to standby operation.
- Alu-Plus for seam surface improvement when welding aluminium.
- Cleaning the contact tip by moving (ranging) the wire in the weld pauses.

3. Shielding gases

The following gases are used for MIG/MAG welding: Pure Argon, CO_2, mixtures of Argon and CO_2 or Argon, CO_2 and O_2.

Flammable gases or gases which induce a chemical reaction such as Acetylene, Propane, pure Hydrogen, pure Oxygen are **prohibited**.

4. Accessories, Options

4.1 Pulse synchronization of several power sources to reduce the mutual interference when several arcs are working close together at the same component.
4.2 Wire feed control
4.3 Calculator interface (RS 232/RS 422)
4.4 Remote feed technology
4.5 Duo-Drive (CDD)
4.6 Weld data monitoring (SD)
4.7 TW-/Arcette connection socket for manual wire drive units
4.8 Remote controller
4.9 Push-Pull wire drive units
4.10 Switching devices - 2 CK to 1 GLC
4.11 Cooling air entry filter

III. Operating instructions

1. Transport

The machine must always be transported **without** gas cylinder.
All cables must be wound up and put on the machine before transport.
The machine can be moved on its wheels. When using a fork lift truck, the forks must be applied between the wheels. The machine must lie crosswise on the truck.
Transport by means of a crane is also possible. If jack rings are available **all** of them must be used because of the carrying capacity and load distribution. If there are no jack rings, two belts must be used, pulled crosswise under the machine inside the wheels.

2. Mounting area, floor requirement, environment

- The machine should be installed on a horizontal, flat surface, dust-free and well ventilated.
- The distance between other machines or buildings should at least be 0.50 m on all sides, to aid ease of servicing.
- The cooling air entrance and exit grills must not be restricted in any way
- The ambient temperature may vary from -10^{0}C to +40^{0}C .
- The machine is protected to IP 23 which does not permit use in the rain. If necessary, it should be covered. In this case ensure that the cooling air flow is not affected!

- The machine is marked "S", which means approved for welding in environments with increased electrical hazard; however, the power source itself must not be installed there due to the mains voltage of 400 V; only the welding torch and the wire drive unit are permitted in such places.

3. Storage

- The machine should be stored indoors at a temperature between -10°C and +40°C and should be covered.
- If the coolant is not emptied, please ensure that an anti-freeze agent is added. The coolant must be disposed of and must not enter the main drainage system.

4. Assembly

A complete machine comprises:

1. Transistorized MIG/MAG pulsed arc welding machine type GLC 503 QUINTO, Version Profi
2. Wire drive unit type Typ CK 78 D
3. Cable assembly, connectable
4. MIG/MAG welding torch
5. Standard accessories including:
   - Earth cable
   - valve with l/min.-scale
   - Set of fuses for power source
6. Options, if required

The individual components, MIG/MAG welding machine, connectable cable assembly, wire drive unit, gas cylinder and reducing valve have to be assembled. The water hoses must not be exchanged. The flow is marked blue!

Fill in the coolant. All water-cooled machines are supplied with a 5 litre container of ready-to-use mixture.

5. Power supply

The power supply must be installed by qualified personnel only!
Please ensure that the mains voltage to be used is identical to the operating voltage indicated on the machine type plate.

According to the connection regulations the machine has to be connected by means of a mains cable. The power supply must be fused according to the connection regulations. To ensure good welding performance the cross section of the connection cable must be adequate.
The phases L1, L2, L3 and PE are connected. The neutral wire (N) remains free.
A correct conductor connection must be provided! (VDE regulations).

6. Torch connection, earth cable

- The welding torch is connected to the central connection, item 13, the water hoses to the connections items 119 and 120 - they must not be exchanged (insufficient cooling of the welding torch). The flow is marked blue. The control line is connected to the socket, item 109.
- The earth cable is connected to the current connection, item 79, and locked by turning right.
- The gas cylinder is placed on the base plate, item 87, at the rear of the machine and is secured by a chain, item 87/2, which is connected to the holder, item 87/1.

7. Shielding gas, reducing valve

— The reducing valve is screwed onto the gas cylinder and connected to the machine by means of the gas hose, item 215. The gas quantity is adjusted at the reducing valve. For this purpose the machine must be switched on and the torch button or key “gas manual”, item 103 must be actuated at the wire drive unit.
— The normal gas quantity for Argon and mixed gases is 8 - 15 l/min. and for CO_2 10 - 20 l/min.
— In general, carbon dioxide with a percentage purity of 99.9 % is used for welding with unalloyed or low alloy steels with a strength of 37 - 60 kgs. In Germany the gas cylinders have the additional marking “S” (= Schweißzwecke - welding purposes).

These steels can be welded with the gas mixture (AR + CO_2 + O_2), high alloy steels, e.g. chrome nickel steel require protective gas K2 (Ar + 2% CO_2). Aluminium and other nonferrous metals require pure Argon 99.9 %.

— The flow quantities indicated on the extraction manometer depend upon choke setting, item 113/2 in front of the gas valve, item 111. This choke has a nominal diameter of 0.6 mm. The nominal diameter size 0.6 is clearly marked on the litre scale of the extraction manometer. For example, in the case of 4 bar, the flow quantity is 11.5 l/min.

— In the case of ring mains which operate at less pressure, it is not possible to set a flow quantity of 11.5 l/min. In this case the choke diameter has to be enlarged from 0.6 to 2.0 mm or the gas retaining unit, item 113 exchanged for item 113 a, so that a greater flow is created at a lower pressure.

— If the original flow meter is not connected, the flow quantity at the gas nozzle of the welding torch must always be checked with a suitable flow meter.

— A simple gas flow measuring tube is available under ref. No. 097 03 04 00.

- The **wire drive unit CK 78 D/R** is especially designed for the **use with a robot**.
  For this reason the **gas valve** and its **choke bore** have been modified!
  The CK 78 D/R is provided with a **0,85 mm Ø** choke bore because the shielding gas for robot installations is generally supplied by a ring mains system. This ensures a sufficient shielding gas quantity, even with low pressure. The flow quantity is shown on the **outer scale** of the output manometer of the reducing valve.

8. Wire drive

Wire drive rollers, item 18, wire guide unit, item 10 and wire inlet nozzle, item 15 are marked according to the wire size, to prevent wrong nozzle size being used by mistake. This also applies to the contact tips and liners of the welding torch, which are also marked with the wire sizes.

When changing the wire drive rolls and gear wheels, force must not be used to mount them on the gear shafts, e.g. hammer or similar because this might cause damage.

Prior to installation, all parts must be cleaned and - except the drive rolls - be greased.

The welding wire itself is threaded inside the wire drive unit throughout the wire guide spiral, item 12, the wire drive rollers, item 18, the wire guide piece, item 10, and the wire inlet nozzle, item 15. The wire is transported to the torch by actuating the torch button wire manual, item 104 on the wire drive unit. To do this the machine must be switched on.

The pressure arms, item 7 and item 8 must only be sufficiently pressed against the pressure units as is necessary for the relevant wire type and size. The adjustment is reproducible. The pressure arms swing out for threading the wire or exchanging the wire drive rollers. The two pressure units, item 9, have to be adjusted equally.
The pressure units of the pressure roller brackets must not be set at more than -3-

The brake of the wire coil holder can be adjusted with the tightening screw, item 8. The wire coil should not move when the motor brakes, to prevent wire windings falling off the coil and kinking or short circuits occurring.

If the brake no longer works, the brake disk, item 7 must be replaced!

The wire coil must be secured on the wire coil holder with the locking button, item 2, to prevent it falling off.

9. Coolant

The coolant can be filled in the cooling system after having connected the welding torch. Only distilled water <u>must</u> be used! It is **<u>not allowed</u>** to used chlorinated or mineral water because of its electrical conductivity. As the cooling system cannot be emptied completely, an antifreeze must **<u>always</u>** be contained to avoid a frost damage. This also leads to a corrosion prevention. The CLOOS coolant M must be used.

A 5 l container of coolant M (frost protection until -10° C) is supplied with each water-cooled machine.
CLOOS part No. 000.01.01.31.

The water container is filled via filling connection, item 86. A certain vacuum must remain so that the cooling liquid can return during water blow through without overflowing. The drain cock, item 93, at the rear of the machine must then be opened until the coolant flows out. The water pipes are thereby vented and coolant is brought to the pump.

WARNING! Avoid dry-running of the pump, even for a short period! Otherwise the shaft seal may be damaged.

With regard to the construction of the pump it is important that the cooling liquid is absolutely **clean**. Impurities such as sand or swart as well as sticky residues, lubricating grease etc. may damage the pump.
Be careful after torch repairs !

Danger! Glykol
Dangerous if swallowed !
Harmful to skin! Carefully wash your hands after filling!!
Safety precaution!
Keep out of reach of children.

The water hoses are filled when the machine runs. When using very long cable assemblies, the resulting loss of water in the cooling water container must be replenished. Please note the max. coolant quantity!

The cover must always be screwed down to prevent contamination of the cooling liquid!

The welding machine must always be switched off when the torch cooling circuit is interrupted, for example when the welding torch is removed. 'The water connections then shut automatically to prevent the coolant running out. The pump produces a dynamic pressure of 3,8 bar. If this pressure exists for a long period, the pump and the coolant heat up to such an extent that damage and leakages may occur.

When welding at high ambient temperature (greater than 40°C) with high capacity (greater than 500A) it is recommended that the cooling water for the torch is cooled by a separate water cooling device, i.e. ST 157/2.This device prevents the ambient air being warmed up by the components which are being cooled, as is the case with an integrated water cooling system.

WARNING!
The machine is provided with a water filter in front of the suction side of the cooling water pump.
When the message "lack of water" occurs, this filter must be checked for impurities, be removed, washed and reinstalled.
Do not change the mounting direction! Arrow head away from pump ! Do not install a water filter without a flow control switch.

Water cooling device

When welding at high ambient temperature (greater than 40°C) with high capacity (greater than 500A) it is recommended that the cooling water for the torch is cooled by a separate water cooling device, i.e. ST 157/2. This device prevents the ambient air being warmed up by the components which are being cooled, as is the case with an integrated water cooling system.

10. Commissioning

The machine is switched on with the mains switch, item 68. This is indicated by the white control lamp, item 59/1. Voltmeter and ammeter, item 44/1 and 44/2, light up, the display item 44/3 lights up.

Pum and fan are switched on after approx. 10 s for 1 minute. The cooling air is suctioned at the front side and blown out at the rear side (gas cylinder).

Interval switch off for pump and fan!
Pump and fan are only switched on when welding. After welding they run for approx. 5 more min. in order to recool accordingly. This avoids that in the case of longer downtimes dirty cooling air is sucked into the machine. Furthermore, noises and current consumption are reduced.

The fan is provided with two power steps. Normally the low step I is switched on. If cooling is not sufficient, the stronger step II can be used.

11. Special safety devices

11.1 Temperature protection

The main transformer, main rectifier and transistor cascade are protected from overheating by thermal switches which cut off the welding command. This is indicated by a yellow control lamp and as plain text on the display. The machine should remain switched on so that cooling air can continue cooling.

11.2 Overload protection

The cooling fan and water cooling pump are protected from overheating by thermal switches. Overheating can be caused by overcharging the motor windings. The thermal switches cut off the welding command and the tension from the motor winding. This is indicated by a yellow control lamp and as plain text on the display.
Switch the machine off and eliminate the cause for overheating.

11.3 Low water switch

In the cooling water container there is a float switch which cuts off the welding command in the case of low water. This is indicated in plain text on the display. Fill in cooling water so that the float switch switches on again.

11.4 Flow switch (option)

A flow switch is provided in the torch return which controls the cooling water flow quantity. The works setting is 1.1 l/min. In the case of underflow due to obstruction, fault in the pump mechanics or similar, the welding command is switched off. This is indicated in plain text on the display.

12. Operation / Service

The machine can be commissioned when the welding machine, cable assembly, wire drive unit, welding torch, earth cable, shielding gas cylinder with reducing valve and welding wire have correctly been connected and installed.

- It should be ensured that the flow and return water hoses of the wire drive unit and the torch are not mixed up (insufficient torch cooling). The flow is marked blue.
- The cable assembly must be protected from tension on the power source with the enclosed hose clip on the upper part of the cylinder holder.
- The cable assembly must be protected from tension of the wire drive unit at the baseplate with the second hose clip.

13. General instructions for shielded gas welding

With MIG/MAG shielded arc welding machines both short arc and spray arc can be used.

Short arc is also called “dip-transfer arc”. When using the short arc procedure, there is a relatively low welding density on the welding wire so that the additional material passes on to the workpiece in the shape of individual drops (approx. 50 - 80 drops per second). The heat input itself is relatively low so that with this method thin sheet as well as root and vertical up seams with thicker plate can be welded (also awkward position welding).

With the spray arc technique a high current density is used on the wire cross section. The welding material no longer passes in drops onto the workpiece but as a spray. Wherever an adequate welding performance as regards the fusion quantity is required, the spray arc process is the only one to consider.
At less than approx. 180 Amps/mm^2 current density with steel wire short arc welding is generally considered, whereas with more than 200 Amps/mm^2 the spray arc technique starts to be used. The transition from short arc to spray arc varies according to the different kind of gases.
Using CO_2 as shielding gas, deep penetration is a feature with steel welding, whereas, Argon S 5 (Ar + 5 % O_2) for example gives only slight penetration. Using gas mixtures (normal ratio about 90 % Ar + 5 % CO_2 + 5 % O_2) penetration lies somewhere between the two above gases.

Due to the deep penetration when using CO_2, the wedge angle must not exceed 30 - 40°. Less welding material is therefore required on the one hand and on the other, the welding efficiency is increased.

In the case of thin sheet, up to 3 mm maximum, the vertical down seam position is advisible, as this results in a higher welding speed and the surface appearance of the seams is also improved.
High alloy steels are welded using protective gas K2 (Ar + 3% CO_2).
Non-ferrous metals such as aluminium, copper, bronze, etc. are welded with pure Argon 99.9% or gas mixtures consisting of Argon and Helium (65 % Ar + 35 % He).
In the case of copper welding it is also necessary to preheat the workpiece from 4 - 5 mm thickness upwards to coat the welding edges with a deoxidizing paste.
During welding the welding torch must be held at an angle of 5° towards the vertical of the workpiece. The tip is approx. 15 mm away from the workpiece wire diameter.

14. Special instructions for pulsed arc welding

Spray arc
Using Argon or Argon mixtures with less than 20% CO_2 and sufficient high power and voltages the material transition is carried out freely in the form of small drops or drop chains without short circuit formation. Therefore a spatter free welding is possible with the spray arc. A precondition is, however, the use of the above shielding gases. Due to the high energy input and the high deposit efficiency this technique is only used - similar to the semishort circuiting arc weldment - for the filler and cover pass welding in the w- and h-position.
Pulsed arc
The short-circuit free material transition of the spray arc is made use of by the pulsed arc technique. The energy source switches periodically to a higher pulse current, which makes an aimed and well controllable material transition possible, while the base current serves for the ionization of the arc distance and the preheating of the wire electrodes end and the material surface. By means of these current pulses a free material transition in the rhythm of the pulse frequency is achieved.

This technique allows a good mastery of the molten pool, which is very important for out-of position welding. Due to the high pulse currents in the case of small base currents relatively thick electrodes can be used.

The working range in the pulse technique is restricted to the min. or max. current capacity of the wire electrode used.

The disadvantage of the complicated adjustment of the welding process (max. 5 parameters) is compensated in case of an aimed variation of the welding parameters. Therefore the degree of dilution in case of deposit welding is for example kept small, or when selecting a material transition with one drop per pulse with corresponding drop size a virtually spatter-free welding is achieved.

The correct pulse current adjustment is achieved when the wire end can be seen as tip in the arc.

15. Instructions for welding

Non-copper welding wire, aluminium and special steel wire are very prone to **sticking** to the current tip in the welding torch. Especially in the case of thin wire, peak current limitation measures are often required for the ignition from the power source, these can be supplied optionally for the QUINTO machines to guarantee reliable operation.
An appropriate version of the voltage control card must be installed.
In the case of special steel wire a plastic liner must be installed in the welding torch, as is always the case for aluminium. Metal shavings cause arcing which adversely affect the wire feed.

When MSG (metal shielded gas) welding the welding wire is charged with the potential positive welding current whereas the power source minus pole is often connected to the mains protective conductor via earth connection.
For this reason it is important that the welding wire in the wire drive unit, the wire drum and the wire dereeler or in its transport section does not touch the mains earth conductor or the counter potential negative welding current (welding compound).
This kind of short circuit causes the weld result to deteriorate and may destroy components. There is a risk of fire due to the hot welding wire sections.

IV. Problems during operation

1. General information

Errors during welding can be eliminated by qualified personnel or welders.
Electrical trouble shooting must be carried out by experts only. If an error cannot be corrected by your own service staff, please contact your nearest offical CLOOS representative.

List of addresses: Cloos representatives in Germany and abroad (see appendix).

2. Special information

1. Welding machine cannot be switched on
a. Mains cable without voltage
b. Machine is not set to the correct mains voltage

2. Machine supplies low or no welding current at all
a. Loose contact or arcing at the welding cable or workpiece clamp
b. Faulty electronics

3. Wire feed does not work properly
a. Wrong feed components are installed (are marked accordingly)
b. Wire is bent
c. Surface is not clean
d. Counter pressure roller is loose
e. Wire coil brake is too tight
f. Tolerance within wire alignment set is not correct

4. Welding seams are porous
a. Welding material severely rusted or soiled with paint / oil or double sheet
b. Distance of welding torch - workpiece too large
c. Porosity due to magnetic blowing action by the welding material. As preventive measure always keep welding movement away from the workpiece clamp (minus pole).
d. Welding torch is held too flat
e. Too little or polluted gas
f. Cross wind blows away the gas shield. Screen the welding area.

5. Machine fails to operate even though welding was carried out a short time ago

a. Due to the overloading the thermal switched have reacted. Let the machine cool down until the yellow control lamp (item 59/3) goes out again.
b. Lack of water! Refill water container. Check flow rate. These errors are indicated on the display under system error!

ATTENTION !

Before any work is carried out inside the power source, the mains switch must be switched off and the mains plug disconnected.

After disconnecting the mains plug, wait at least 2 minutes until the capacitors have reached safe values!

V. Maintenance

1. Information, intervals

Regular maintenance of the machine is essential for safe and troublefree operation. For this reason the necessary maintenance work and repair work must be carried out at regular intervals.
This is anyway required in the safety regulations VBG 4!

The maintenance of the machine mainly concerns the welding torch. The life of the gas nozzles and current tips which are subject to wear, can be extended considerably if they are sprayed from time to time with torch spray, which allows easier removal of welding spatter or prevents their adhesion altogether. The liners must be cleaned after welding 50 - 100 kgs wire, depending on wire size. To do this they are pulled out of the outer hose. The outer hose and the liners are blown out with compressed air.

After welding one coil of wire (15 kg) the current tips should be cleaned with the cleaning drill!

Attention!
Before any work is carried out inside the power source the mains switch ust be switched off and the mains plug disconnected.

Daily checks
1. Please check the machine for abnormal vibration, humming noise and smell.
2. Please check the connection bushes, cables, hoses and torch for abnormal heating, insulation faults, tightness and ceanliness!
3. Please check the coolant level in the container. The cover must always be fastened!
4. Please check the wire drive unit. Abrasion deposits of the welding wire must be removed with dry compressed air which also prevents a premature wear.
   The mechanical drive parts must be cleaned and greased at regular intervals. Do not grease the drive rolls; this would cause the wire to slip.
5. If a filter is mounted at the front of the air entry, it must be cleaned when dirt collects on its surface. Otherwise the duty cycle of the machine is reduced and the temperature of the torch coolant is increased to an inadmissible range.
   Please use caution!

Monthly checks
1. Please check the cooling agent for cleanliness
2. Please check the cooing radiator, item 88 at the rear of the machine for cleanliness.

Half-yearly checks
1. Please check the interior of the machine and the components for dust and dirt.
2. Please check the mains cable and welding cable for correct arrangement and good contact.
3. Please ensure that the machine is always correctly connected to earth.
4. Please check that the machine cover is correctly assembled
5. Please check the cooling radiator for bent laminates and align, if necessary.

2. Special instructions

2.1 Dust and dirt

2.1.1 The cooling efficiency of the radiator, item 88 at the rear largely depends on the cleanliness of the laminates. These have to be cleaned at regular intervals. It is recommended that cleaning is carried out by blowing dry, oil-free compressed air through the radiator. Dust and dirt will thus be removed and the radiator will regain its original cooling efficiency.

2.1.2 Dust and dirt on the main transformer, rectifier, etc. affect the cooling efficiency of the fan. Furthermore, metal dust on the main transformer might lead to insulation failure and thus cause earth or winding short circuits. These parts must be vacuum cleaned, depending on the degree of contamination. We advise you not to use compressed air because this would increase the dust penetration into the components!
A vacuum cleaner can also be used to clean the upper wiring box. As this box is sealed, this work is only required at relatively long intervals.

2.2 Cooling agent, anti-freeze agent, disposal

The coolant must be drained off if it is **contaminated** (it usually becomes a brownish colour). It must be **disposed of**.

- It must not enter the main drainage system. -

The complete cooling system must then be rinsed with fresh tap water, that means filling, circuation with the aid of a pump, draining off as far as possible; if necessary use compressed air. The new coolig agent is refilled as described under III. in the operating instruction manual, paragraph 8: cooling agent.
Only use Cloos cooling agent - Reference No. 000 01 01 31 which contains **anti-freeze** up to -20^0C and also **protects against corrosion**.

! Clean cooling agent avoids washing out the water channels of the welding torch and other parts of the cooling water system **!**

Operating instructions

GLC 353/503 Quinto Profi V1.70

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B1 Introduction

The Quinto V1.60 welding machine is programmed via the operating panel. During programming all important values are clearly indicated in physical units on a large display. 255 parameter lists can be stored. A weld parameter list is composed of:

- Basic settings
- Weld parameters
- Run-off control (sequence control)
- Options

Basic settings

Basic settings are values by which the welding machine is programmed to the:

- weld procedure
- operational mode
- material
- wire diameter
- gas type

These basic settings determine which values have to be set for further programming.

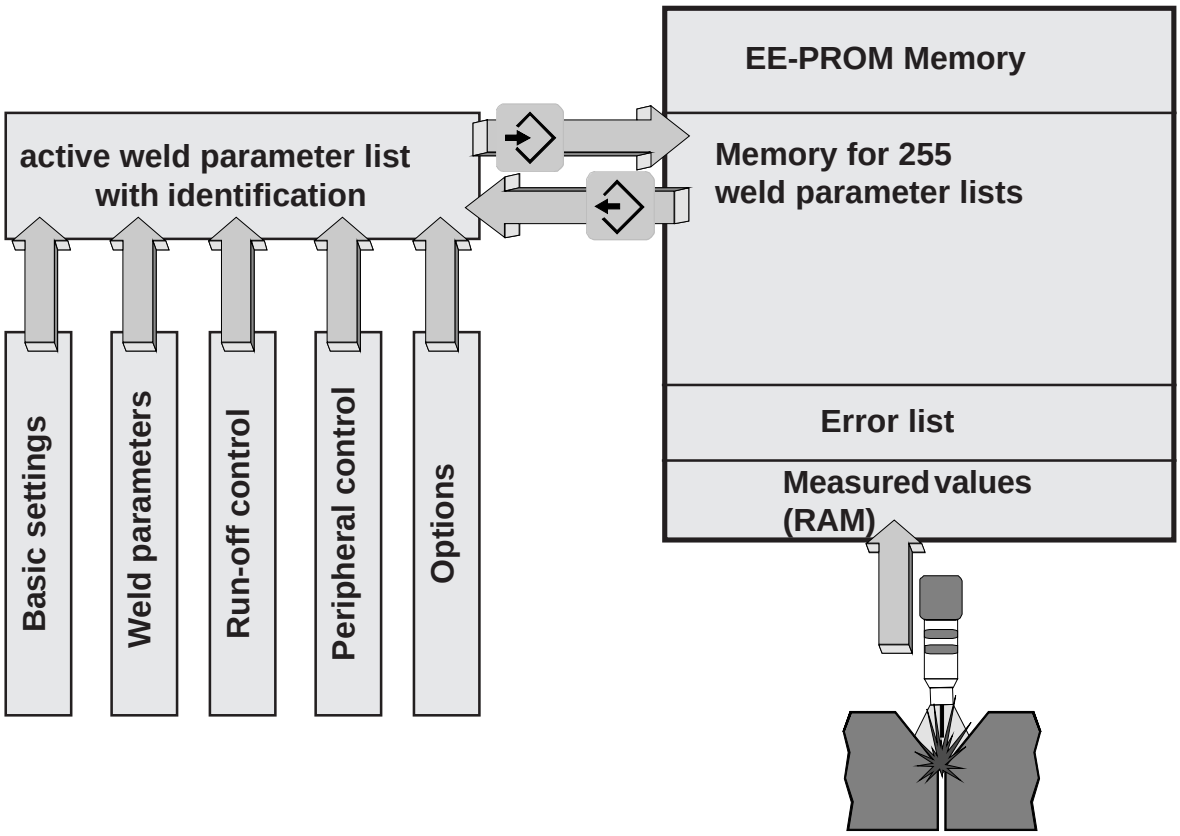
Weld parameters

Weld parameters are values which directly influence the welding process. These values include wire feed, frequency, etc.

Run-off control (Sequence control)

The run-off control (sequence control) includes complete process controls such as start program and end crater filling. The programmed processes are automatically started with the *arc on* and
arc off signal.

Quinto-Software Version concept



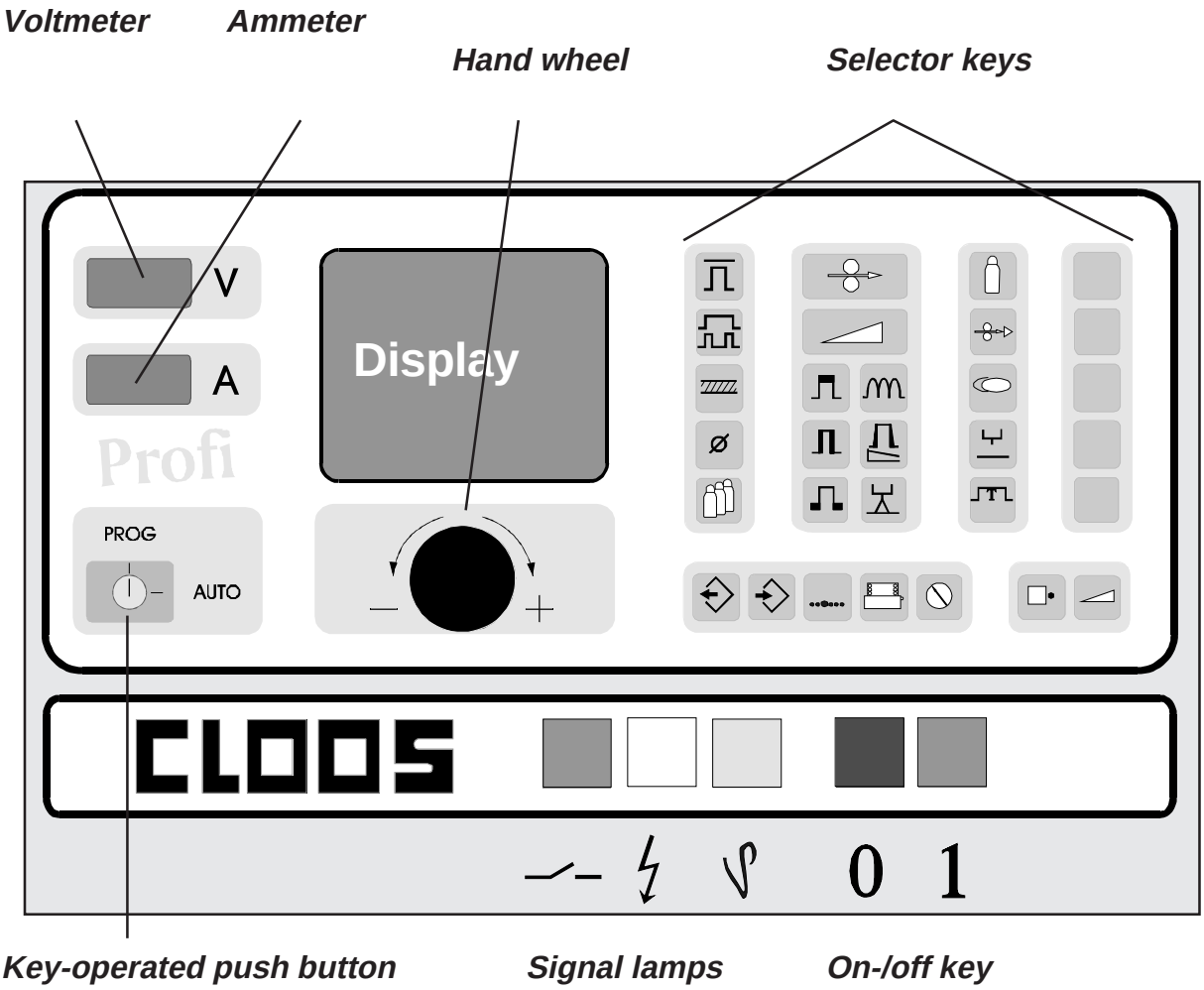
B2 Operating elements

The operating panel consists of several operating and display elements, mounted on the front plate of the welding machine. The operating panel is subdivided into:

- Signal lamps with on/off key
- Key-operated push button
- Voltmeter and ammeter
- Selector keys
- Display with hand wheel

The volt- and ammeters as well as the display and selector switches are protected from dust by a non-abrasive foil.

Illustration operating panel:



B2.1 Signal lamps

The welding machine is provided with:

 = Signal lamp for *start welding*

 = Signal lamp for *mains voltage* present

 = Signal lamp for *overtemperature*

Start welding

The signal lamp indicates if the signal *start welding* is present on the welding machine. The signal can be given by

- the trigger on the welding torch

or

- an external control (e.g. robot control)

Mains voltage

If the welding machine has been switched on and the signal lamp mains voltage does not light up, there may not be any mains voltage, the mains plug is not plugged or the fuses (F1 or F2) are faulty.

Overtemperature

You cannot continue welding, if after or during welding the signal lamp *overtemperature* light up. Keep the welding machine switched on while it cools down. Restart welding after a waiting period.
If the same fault occurs again after a certain period the maintenance staff must be informed.

On-/off key

The welding machine is switched on by activating the on key and switched off by activating the off key. Any modifications in the weld parameter lists, which have not been saved, are lost.

B2.2 Volt- and ammeters

The ammeter shows the relevant welding current. The voltmeter indicates the terminal voltage of the welding machine during the welding process. The open circuit voltage can be read if the welding machine is idle.

B2.3 Key-operated push button

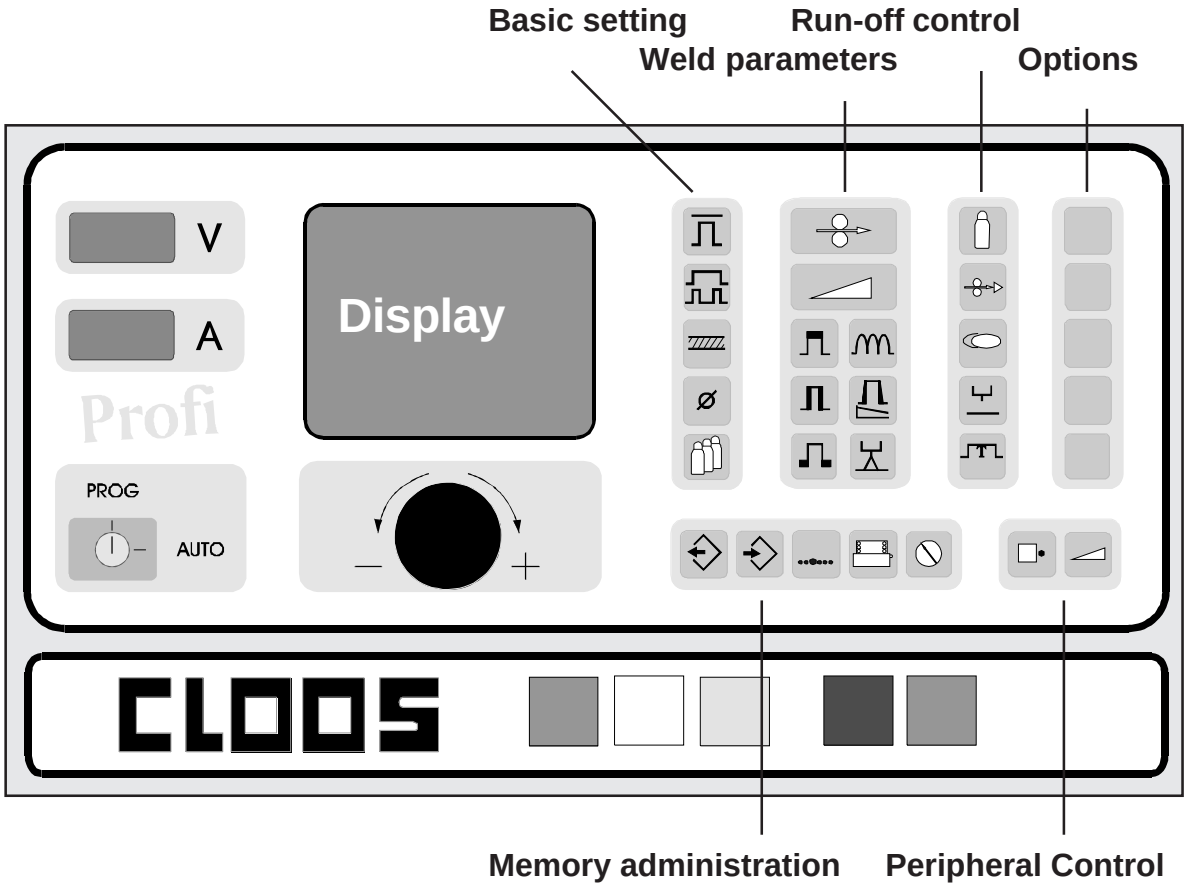
The key-operated push button has two positions:

- PROG (Programming mode)

- AUTO (Automatic mode or welding mode)

In PROGramming mode weld parameter lists can be edited, corrected, copied or deleted. Modifications in AUTOmatic mode can only be carried out within a determined range (e.g. ± 10%) and are not stored in the welding machine memory. The key can be removed in AUTOmatic position.
If a password has been programmed it has to be entered via selector keys F1-F2 when the key operated switch is turned to position PROGramming.

B2.4 Selector keys

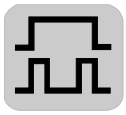


Operation

Selector keys Basic settings

All selector keys and additional selection options and setting ranges are listed below.

Procedure:
MAG Normal
MAG Pulse U/I
MAG Pulse I/I
TIG
Electrode



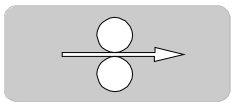
Operational modes:
2 Cycle
4 Cycle
Start external
Spot welding
Super 4 cycle

Material:
Steel
CRNI (Chrome nickel)
Aluminium

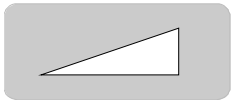
Wire diameter: 0.8 to 2.4 mm

Gas: Gas selection

Selector keys Parameters



Wire drive Setting range from 0 to 24/30* m/min



Frequency (MAG-Pulse) Setting range from 20 to 400 Hz

Voltage (MAG-Normal) Setting range from 10 to 70 Volt

Pulse voltage (MAG-Pulse) Setting range 15 to 70 Volt

Choke (MAG-Normal) Setting 0 to 100%

** Value only valid for GLC 503 Quinto Profi*

Pulse time Setting range from 0.5 to 5.0 ms

Pulse flank (MAG-Pulse) Setting range from 1 to 4

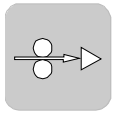
Characteristic slope (curve) (MAG-Normal) Setting range 1-4V/100A

Base current (MAG-Pulse) Setting range from 5 to 350 Ampere

Arc length
(MAG-Pulse I/I setting) Setting range from 0 to 100%

Selector keys Run-off control

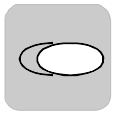
Gas preflow and
Gas postflow Setting range from 0.0 to 9.9 seconds



Start program

The **Start program** comprises the values:

Inching-in:	0 to 24/30* m/min
Spatterfree:	Yes/No
Time:	0 to 9.9 s
Ramp:	0 to 9.9 s
Wire feed:	0 to 24/30* m/min
Frequency:	20 to 400 Hz
Base current:	5 to 550 A



Crater filling

The **Crater filling** program comprises the values:

Time:	0 to 9.9 s
Ramp:	0 to 9.9 s
Wire feed:	0 to 24/30* m/min
Frequency:	20 to 400 Hz
Base current:	5 to 550 A

Stick-out length

** Value only valid for GLC 503 Quinto Profi*

Setting range: 0 to 100%

Weld time

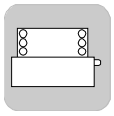
Setting range: 0 to 99.9 s

Selector keys memory administration and print-out

Call up weld parameter list

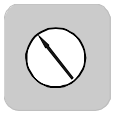
Store (save) weld parameter list

Arrow position



Print

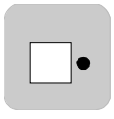
Printing of directory, actual parameter list, graphics, measured values, configuration, error list



Call up measured values

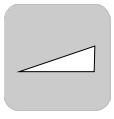
The measured value display displays information on the actual weld parameters gas, voltage, current and wire.

Selector keys Peripheral control



Start of peripheral equipment

Start signal to peripheral equipment after: ignition or a definable delay.



Set value external

Set value output to peripheral unit
Setting range: 0 bis 10 Volt

B2.5 Display and hand wheel

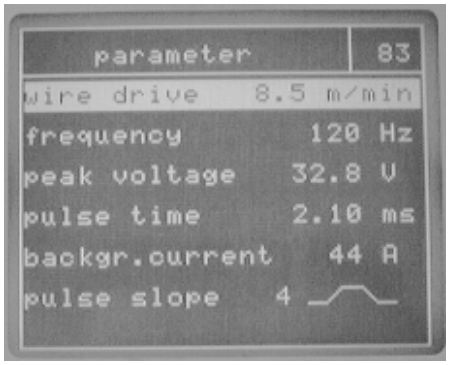
The display is a liquid-crystal-display (LCD), and has a "screen saver" function to reduce the ageing process. This function becomes automatically effective after a 15 minute period and the display turns black. The function switches off if you activate a selector key or turn the hand wheel.
The display informs the operator about the

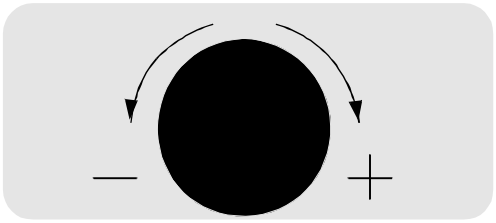
- operating state of the welding machine
- weld parameter settings
- measured values
- settings of the welding machine.

The hand wheel is required to

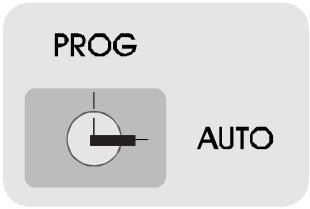
- select a menu point
- modify a selected value.

The selected menu point or the value selected by selector key are highlighted on the display.
The example on the right side shows that the wire drive has been selected and can be changed by turning the hand wheel.





B3 Operation



Operation of the *Quinto Profi* means the functions, which are possible when the key-operated switch is in ***AUTO*** (Automatic operation) position and which are carried out by the welder. These are:

- **Switching on the welding machine and welding**
- **Changing the weld parameters**
- **Calling up a weld parameter list**
- **Weld data monitoring functions (QUINTO Profi SD)**
- **Switching off the welding machine**

A weld parameter list has a

- **number**

and an

- **identification.**

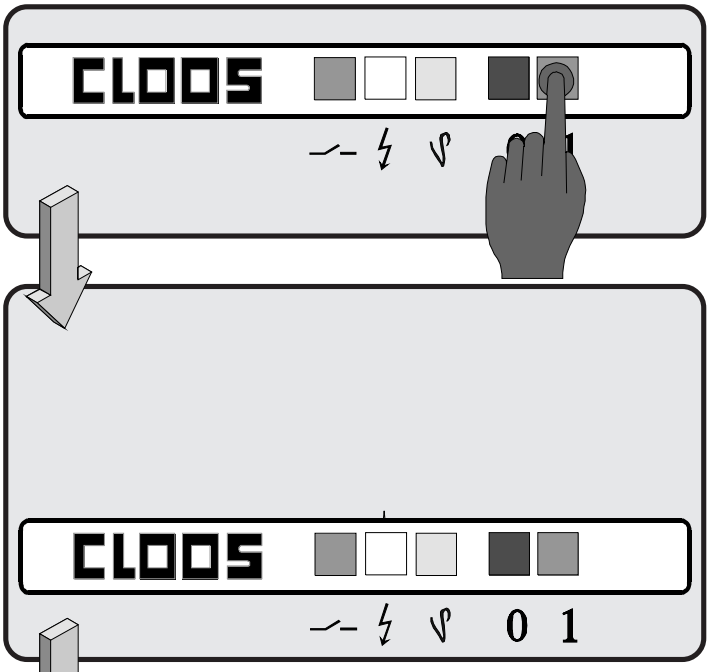
The **number** indicates the place where the weld parameter list is stored.

When entering the **identification,** the user can give the weld parameter list its own name. Both these always appear in the display. More information shown in the display:

Active means that welding takes place with the weld parameter list that follows.

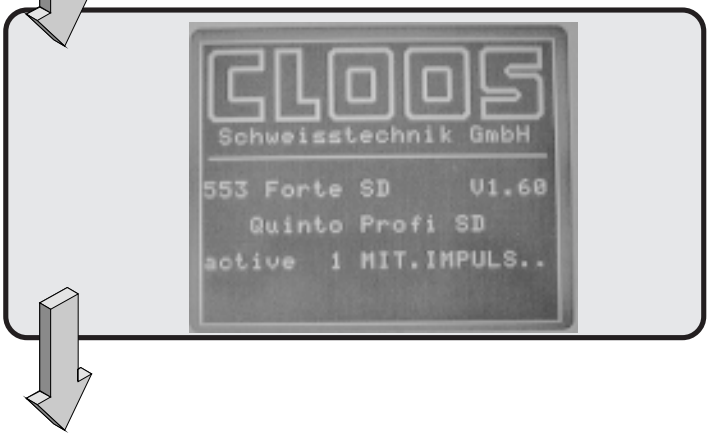
B3.1 Switching on the welding machine

- Switch on the welding machine.



- The message *intermediate circuit is loaded* appears for approx. 5 s on the display. The signal lamp mains lights up.

- The welding machine main menu appears and gives the following information on the display:



Active 1 MIT.IMPULS

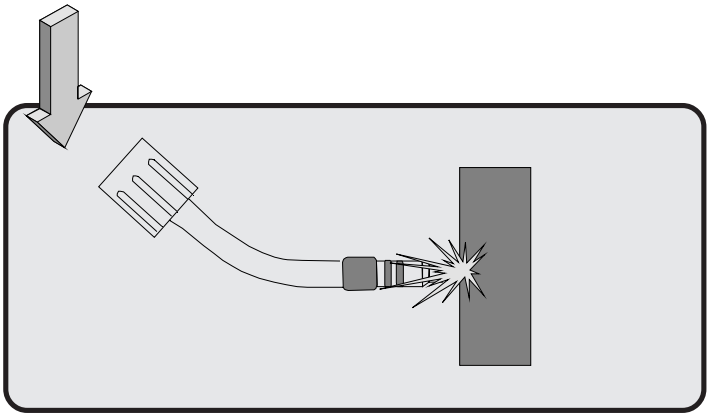
(with pulse)

CAUTION

Protect eyes and skin against arc radiation !

Wear protective clothing!

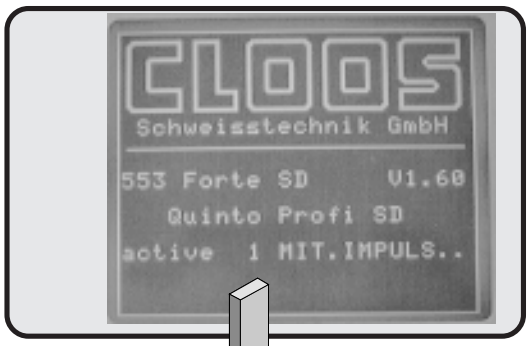
- Now weld using weld parameter list 1.



B3.2 Modification of weld parameters

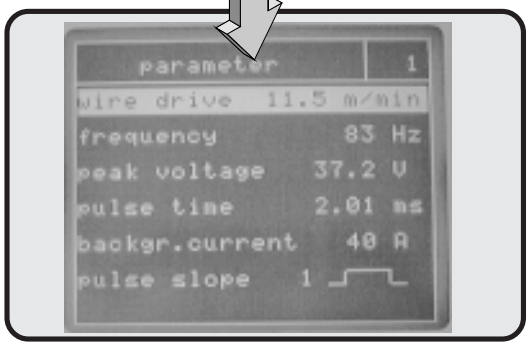
In **AUTO**matic mode the weld parameters **wire feed** and **frequency** (MAG-Pulse) or **voltage** (MAG-Normal) can be changed in a programmed range. The adjustment range is programmed in the configuration menu. It may be ± 10% for example.

- The **Active weld parameter list 1** is used for welding.
  You may want to change the wire feed and the frequency slightly.

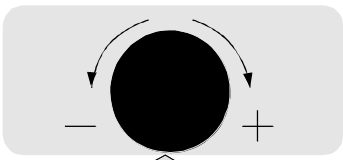


- Press the wire feed key.

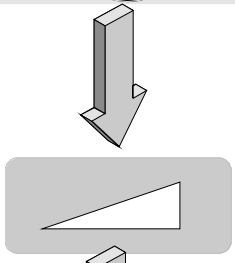
- The display shows the following template.



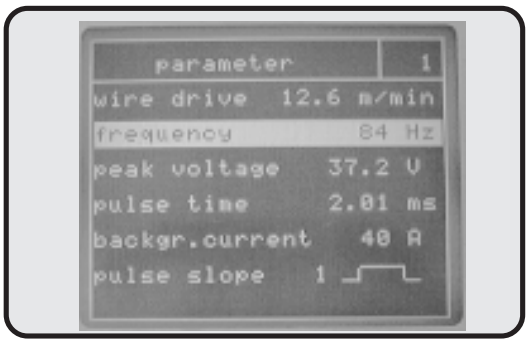
- Turn the handwheel to change the wire feed as required.



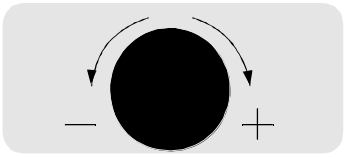
- Press the selector key for voltage or frequency.



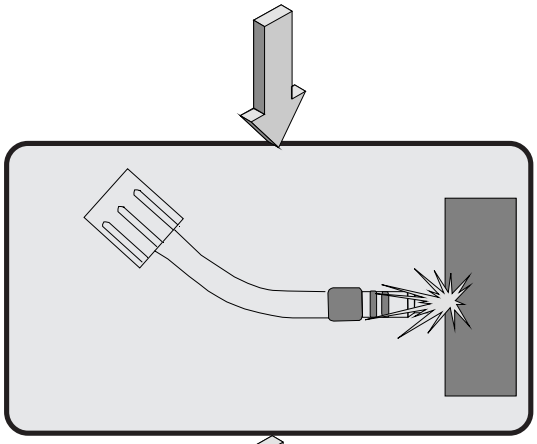
- The display shows the following template:



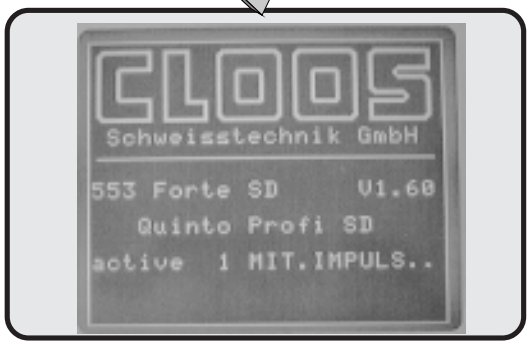
- Turn the handwheel and change the frequency.



- Now weld with the modified weld parameters.



- After a period of 5 minutes, the welding machine automatically goes back to the main menu.



The weld parameters modified in AUTO mode are not saved!

B3.3 Calling up a weld parameter list

You are using weld parameter list 1 for welding and you want to change to weld parameter list 80.

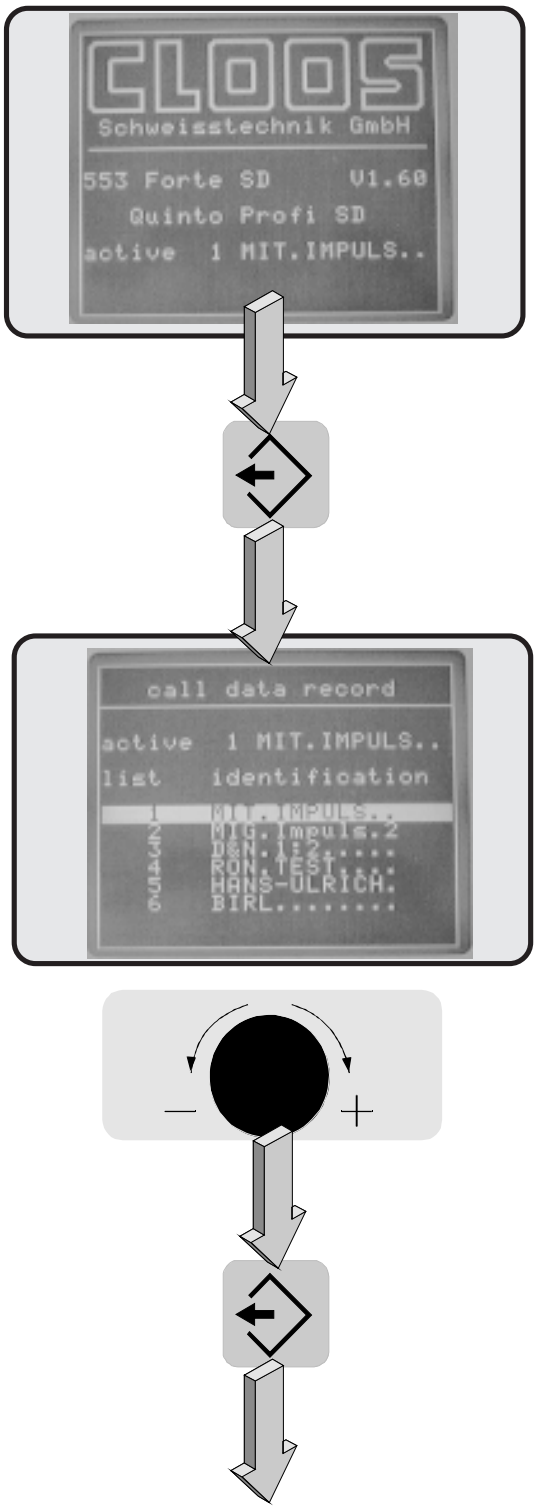
- Main menu

- Press the selector key
  Call up weld parameter list

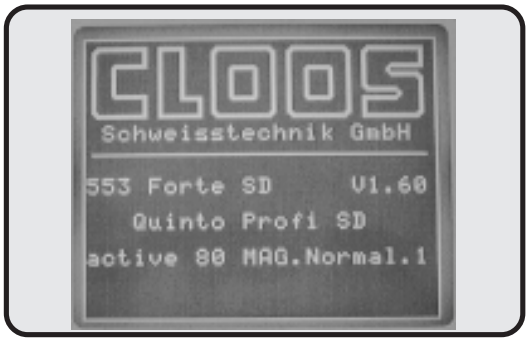
- The weld parameter lists are shown on the display.
  One weld parameter list is highlighted.

- Turn the handwheel until weld parameter list 80 is highlighted.

- Confirm with selector key
  Call up weld parameter list.

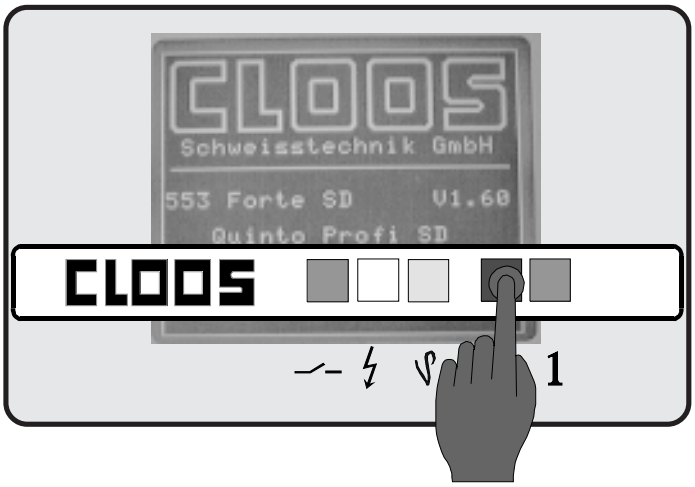


- The welding machine returns to the main menu and you can continue working with weld parameter list 80.



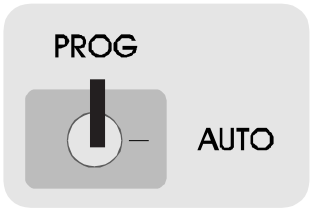
B3.4 Switching off the welding machine

In AUTOmatic mode the welding machine can be switched off at any time.



Any alterations, which have been carried out in AUTOmatic mode are not stored in the memory!

P Introduction



In PROGramming mode the following work can be carried out:

- Switching on the welding machine and welding
- Programming a new weld parameter list
- Altering all the values in a weld parameter list
- Calling up the Configuration- and Service menu
- Copying a weld parameter list
- Weld data print-out
- Programming the weld data monitoring (for *Quinto SD only*)

When programming or changing a weld parameter list, the sequence of operation should be followed as below:

1 Basic settings
2 Weld parameter
3 Run-off control (Sequence control)
4 Possible options
5 Possible peripheral control

This sequence is required because values in the basic settings determine other values. The following examples help to explain the programming of the *Quinto Profi*:

- MAG welding without pulse
- MAG welding with pulse and U/I-setting
- MIG welding with pulse and I/I-setting
- TIG welding
- Welding with flux cored stick electrodes

When turning the key operated switch from position AUTOmatik to position PROGramming you are asked to enter a password. Use the selector keys F1 to F5. The password is defined in *Service menu Password* (See chapter P11.7). No password is defined when the power source is supplied.

P1 Programming a weld parameter list for MAG welding without pulse

Wire diameter: 1.2
Material: Steel
Weld current: 210-220 A

Gas: 82% Argon 18% CO^2
Seam shape: Fillet weld

- The main menu is the starting point for programming.
  Weld parameter list 1 is active.

- Actuate the key
  Call up weld parameter list

  The active weld parameter list is highlighted. The example shows weld parameter list 1.

- Turn the handwheel until a free space is active.

  The example shows list 80.

- Actuate the key Procedure.

- The following procedures
  - MAG Normal
  - MAG Pulse U/I
  - MAG Pulse I/I
  - TIG
  - Electrode

  are shown.

- Select the procedure : MAG Normal by turning the handwheel.

- Actuate the key Operational mode.
  You can choose:
  - 2 cycle
  - 4 cycle
  - Start external
  - Spot welding
  - Super 4 cycle

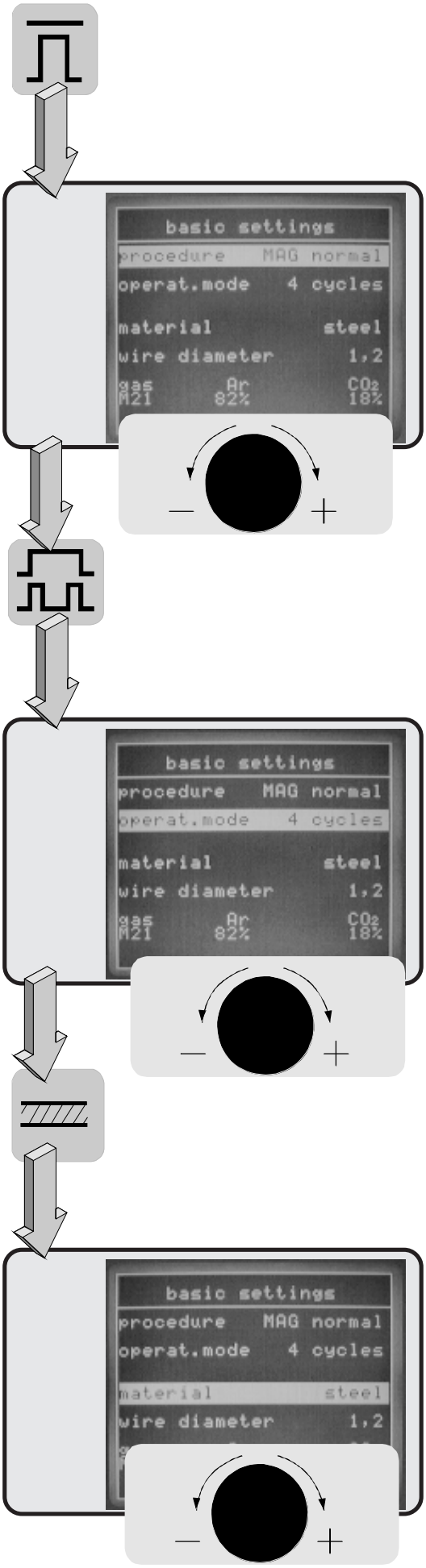
  (The operational modes are explained in the appendix)

  The example shows the operational mode 4 cycle.

- Actuate the key Material.

  You can choose:
  - Steel
  - CRNI (Chrome-Nickel)
  - Aluminium

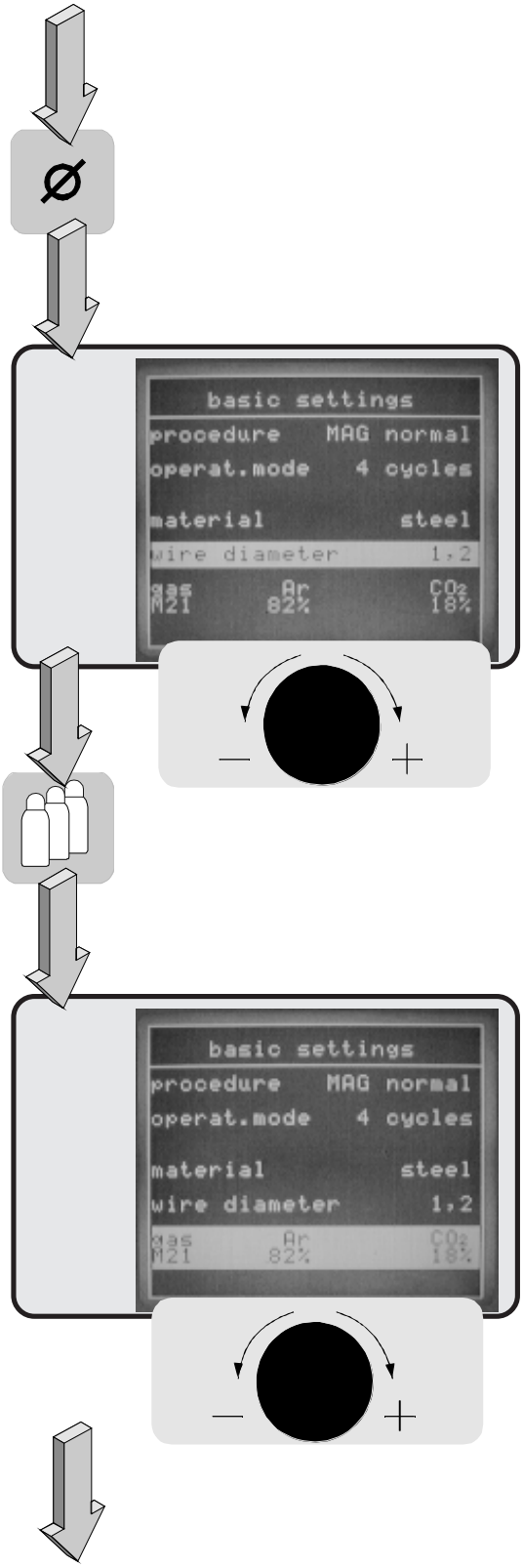
  The example shows the material Steel.



- After pressing the key wire diameter you can select the wire you use. You can choose any wire diameter between

  0.8 and 2.4 mm.

  The example shows a wire diameter of 1.2 mm.



- The last basic setting is the Type of gas. The following gases are available for MIG/MAG steel welding:

  - 99% Ar 1% O_2
  - 98% Ar 2% O_2
  - 92% Ar 8% CO_2
  - 82% Ar 18% CO_2
  - 90% Ar 5% CO_2 5% O_2
  - 100% CO_2

  We have chosen the following gas:

  82% Ar 18% CO_2

The basic settings are now completed.
We continue on the next page with the parameter settings.

- Press the key Wire drive.

- Set the wire drive requiredby turning the handwheel.

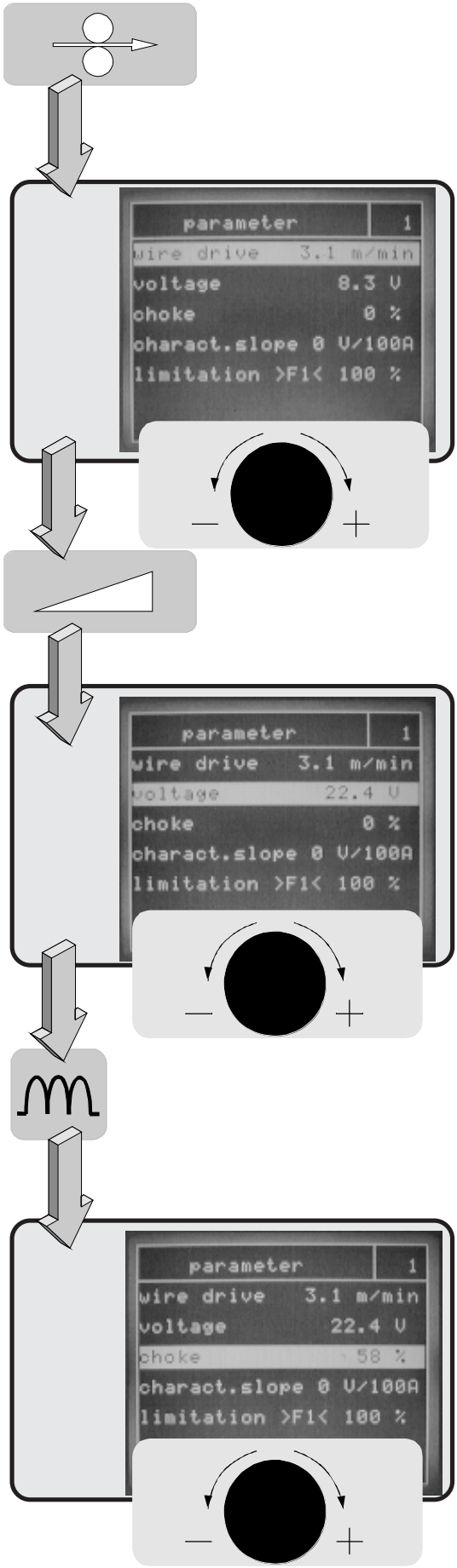
  In our example the wire drive is 3.1 m/min.

- Actuate the key Frequency/ Voltage.

  Set the requried voltage.
  The example shows a voltage of 22.4 Volt.

- Select the choke size.

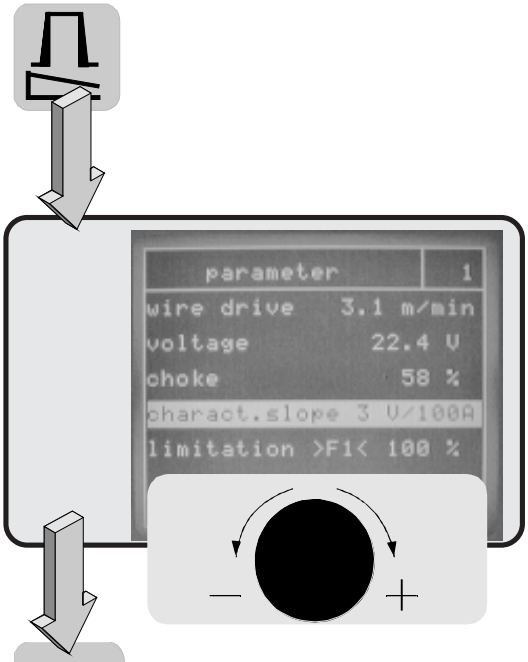
  Turn the handwheel until the required setting is reached.
  The example shows 58 %.



- Actuate the key
  Slope characteristics.

  Determine the slope characteristics.
  The following settings are possible:

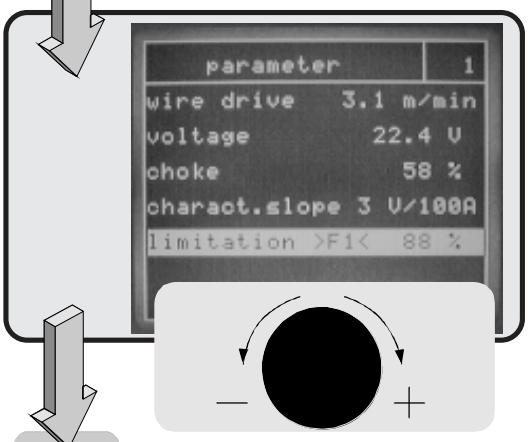
  0 V per 100 A
  1 V per 100 A
  3 V per 100 A
  4 V per 100 A



- When using short arc, the arc power at the moment of short circuit can be limited.

  Press the F1 key and set the required limit with the handwheel.
  The value is indicated in percent:

  100% no limit
  0% maximum limit(ation)



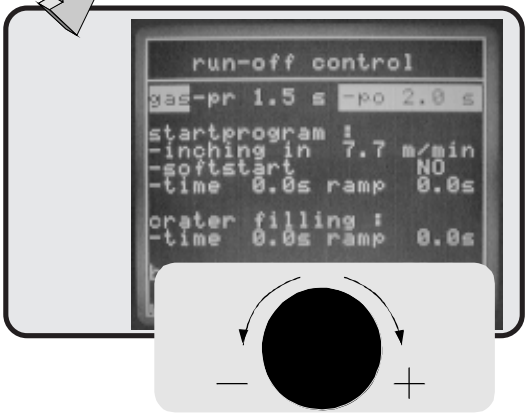
The parameters are now completely programmed.

The run-off (sequence) control values are now to be set.

- By pressing the Gas preflow / postflow key the run-off (sequence) control menu is activated.

  The Gas preflow time is set with the handwheel.
  The example shows 1.5 seconds.

  By pressing the gas preflow / postflow key again, the Gas postflow time is set.
  Our example: 2 seconds.



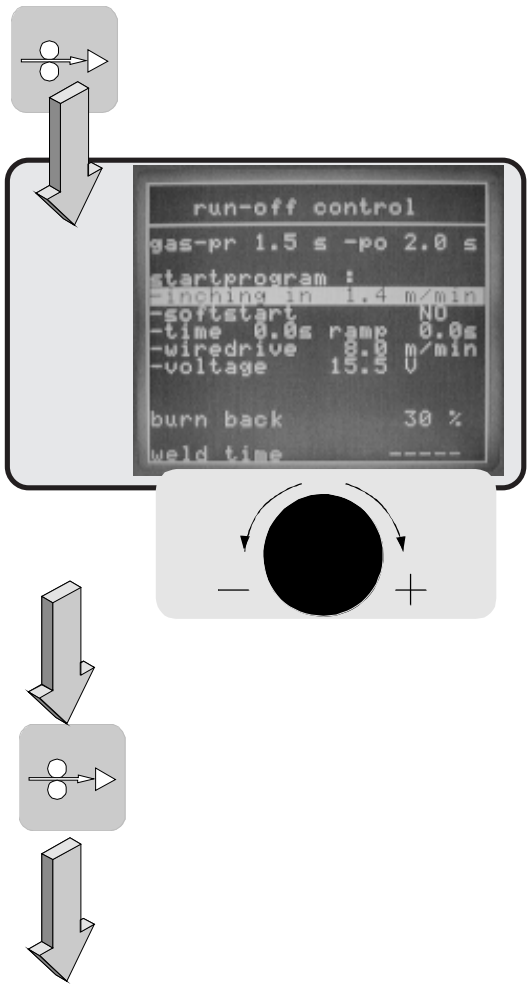
- Actuate the key for the Start-program.

The first setting to be made is Wire inching in. Turn the handwheel to select the setting.
Our example shows 1.4 m/min.

- Actuate again the key Start programm.

You can now decide if you require Softstart - spatterfree ignition - (see definition).
Select

YES or NO.



- Press the Start programm key.

Use the value Time to set the duration of the start program.
Our example shows 2.4 seconds.

- By pressing the Start program key again a Ramp can be programmed.
Our example shows a time of 1.8 seconds.

- Press the Start program key again.

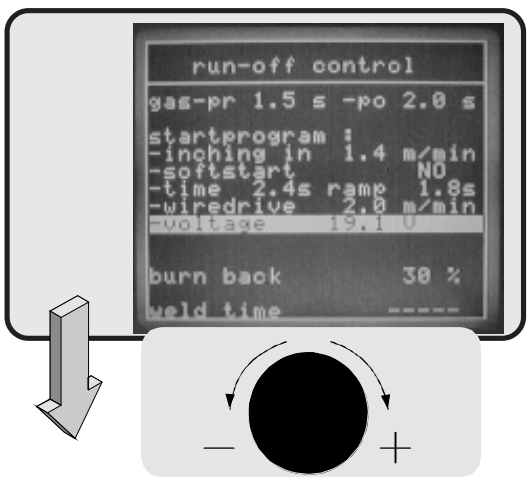
Enter the wire drive speed for the start program.

Our example shows: 2 m/min

- Press the Start program key.

The last value to be entered is the welding voltage for the Start program:

The example shows: 19.1 Volt



- Press the key for End crater filling.

The first setting to be made is the Time for End crater filling.
Make your choice by turning the handwheel.

In our example a time of 3.5 seconds is set.

- Press the End crater filling key again.
Set the ramp (see definition).

The example shows 2.4 seconds.

- Press the End crater filling key again.
Enter the wire feed speed for end crater filling.

Our example shows: 3 m/min

- Press the End crater filling key.
The next value to be entered is the weld voltage for end crater filling:

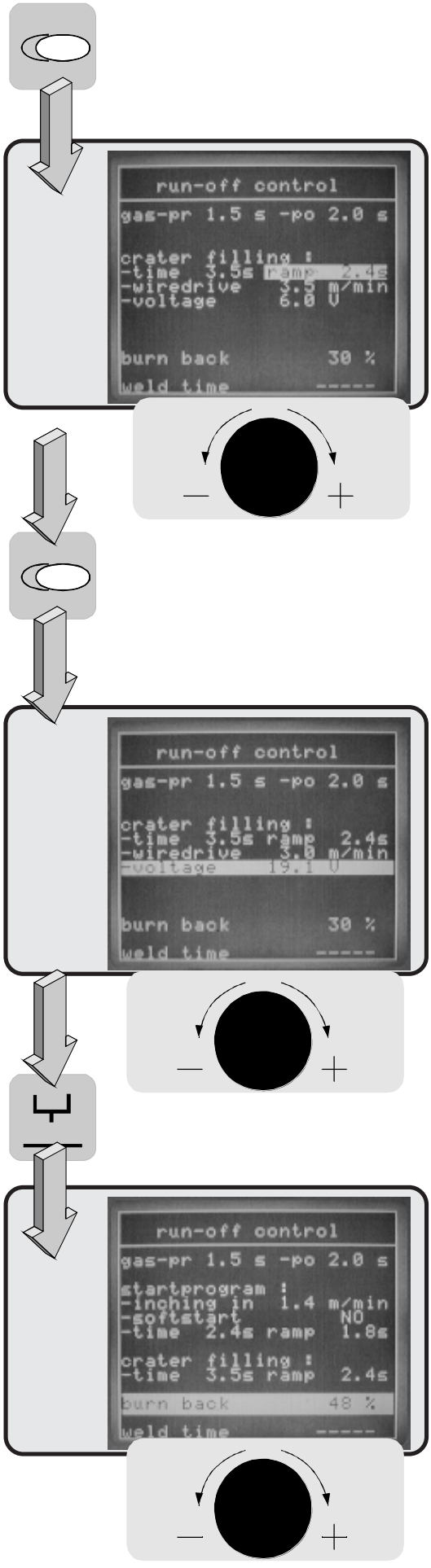
Our example shows: 19.1 Volt

- Use the key Burn back to choose the next value.
Our example shows a burnback of 48 %.

Burn back is carried out with pulsed arc as standard.
If CO_2 gas is used, pulsing must be switched off. The Burn back key must be pressed again.
An equals sign appears after the percentage figure:

48 % =.

The pulsed arc for the burn back is switched off.



- Actuate the key for weld time. The weld time makes a list continuation possible.

  The list continuation function is used for simple automated welding tasks.

  In the example a weld time of 0 seconds is set, **which deactivates the list continuation.**

All values have now been programmed and the list must now be saved.

- Actuate the keys Store and Cursor position.

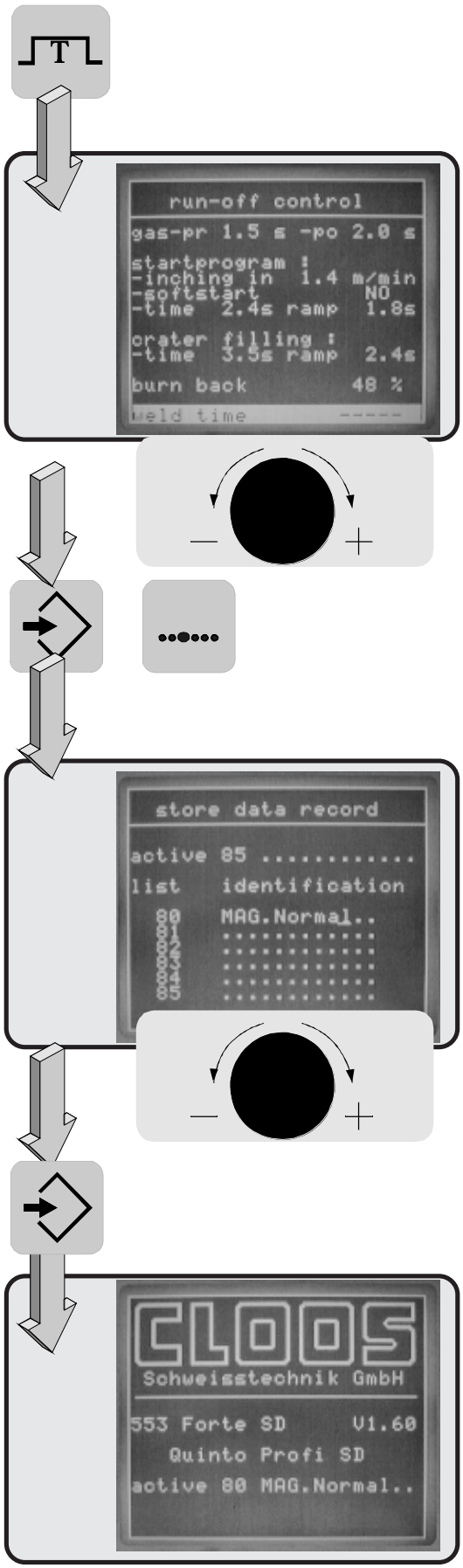
  By turning the handwheel numbers and letters can be called up, which appear in the same line as the actual list number. Procedure:

  - Turn the handwheel to select a letter or number.
  - Press the Cursor position key. The cursor jumps to the next place.
  - By turning the handwheel a letter or number can be selected.
  - Repeat this process until the required list name has been entered.

- By pressing the key Store all values you have programmed are stored under the list number and the list name. Our example shows:

  80 MAG . Normal . 1

  The weld parameter list 80 is now active.



Programming is now complete and you can start welding.

Caution

Protect eyes and skin against arc radiation!
Wear protective clothing!

P2 Programming a weld parameter list for MAG welding with pulse and U/I control

Wire diameter:	1.0	Gas:	82% Argon 18% CO_2
Material:	Steel	Seam shape:	fillet weld
Weld current:	140 A		

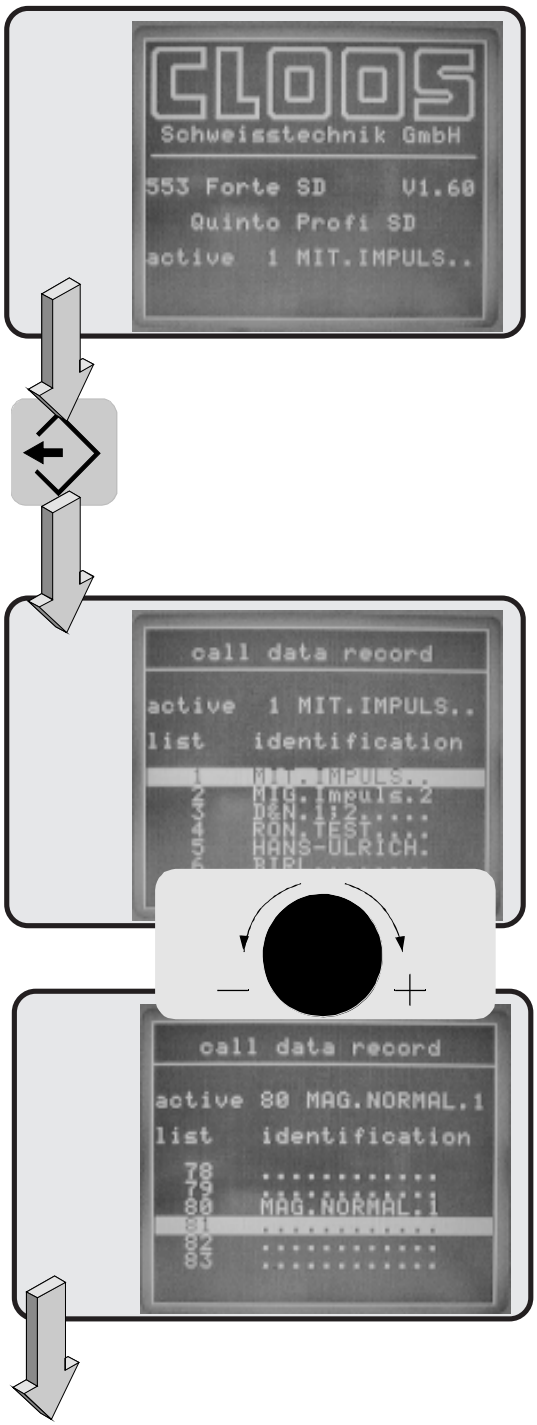
- Starting point for programming is the main menu.
  Weld parameter list 1 is active.

- Actuate the key
  Call up weld parameter list

  The active weld parameter list is highlighted. The example shows weld parameter list 1.

- Turn the handwheel until a free space is active

  The example shows list 81.



- Press the key **Procedures**.

- The following procedures are shown:

  - MAG Normal
  - MAG Pulse U/I
  - MAG Pulse I/I
  - TIG
  - Electrode

- Select the procedure **MAG Pulse U/I** by turning the handwheel.

- Actuate the key **Operational mode**.
  You may select:
  - 2 cycle
  - 4 cycls
  - Start external
  - Spot welding
  - Super 4 cycle

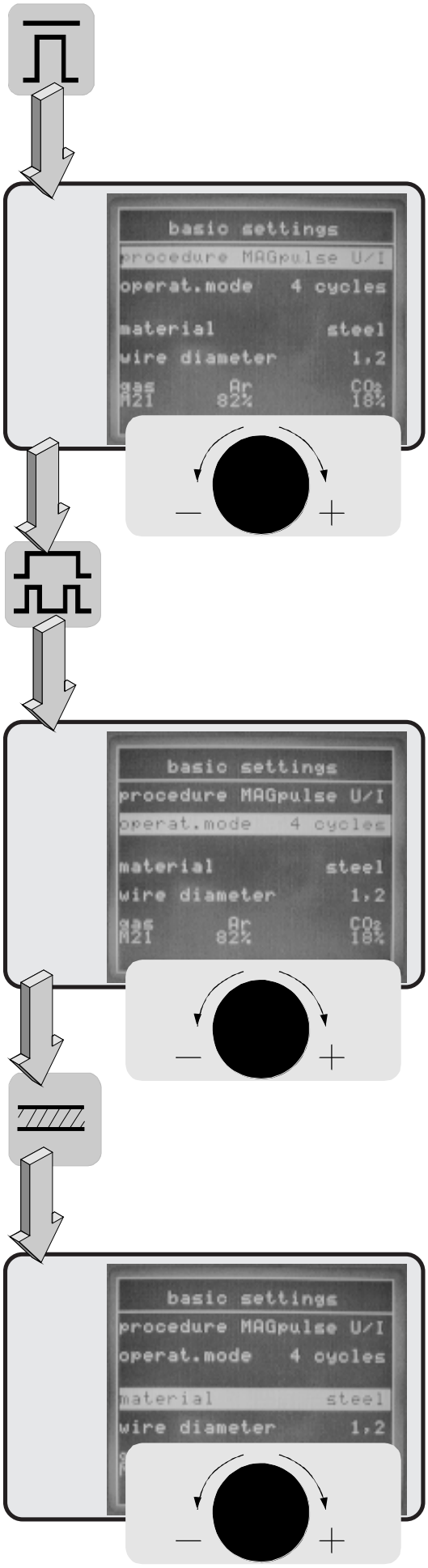
  (The operating modes are explained in the appendix)

  The example shows the operational mode **4 cycle.**

- Actuate the key **Material**

  You can select:
  - Steel
  - CRNI (Chrom-Nickel)
  - Aluminium

  The example shows the material **Steel**.

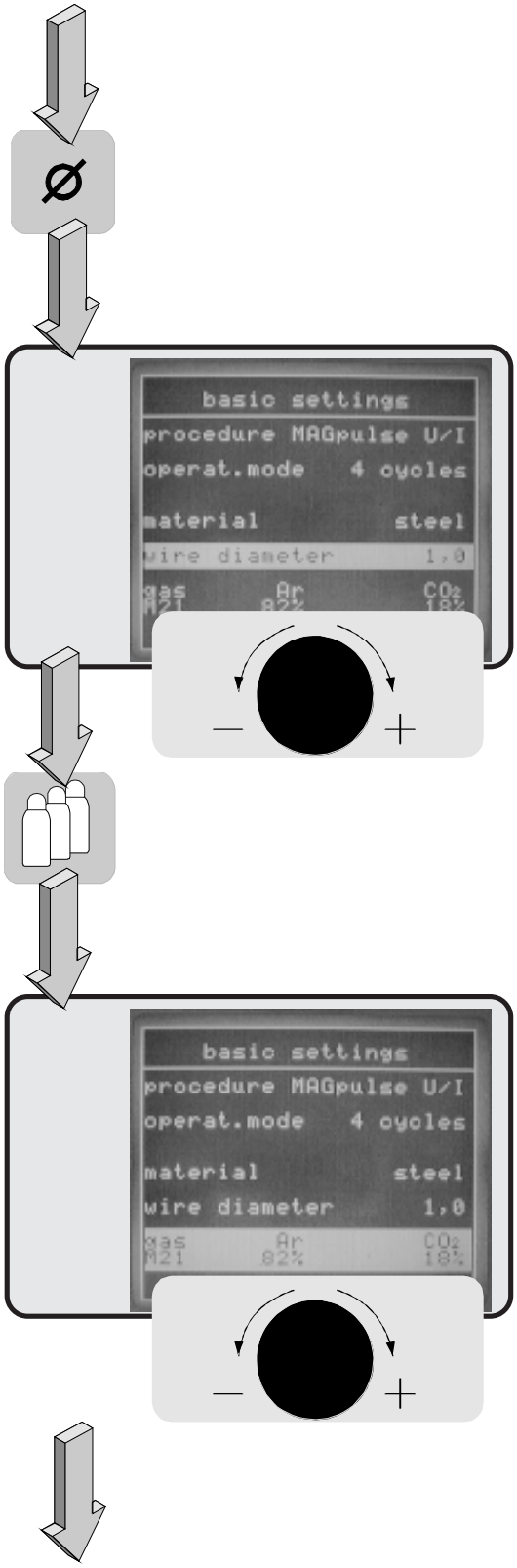


- After pressing the **wire diameter** key, select the wire you wish to use.

  You can choose any wire diameter between

  0.8 and **2.4 mm.**

  The example shows a wire diameter of **1.0 mm**.



- The last basic setting is the **Type of gas.** The following gases are available for MIG/MAG steel welding:

  - 98% Ar 2% O_2
  - 92% Ar 8% CO_2
  - 82% Ar 18% CO_2
  - 90% Ar 5% CO_2 5% O_2

  We have chosen the following gas:

  82% Ar 18% CO_2

The basic settings are now programmed. We continue with the parameter settings on the next page.

- Press the key **Wire drive**.

- Set the required wire drive by turning the handwheel.

  In our example the wire drive is **8.0 m/min**.

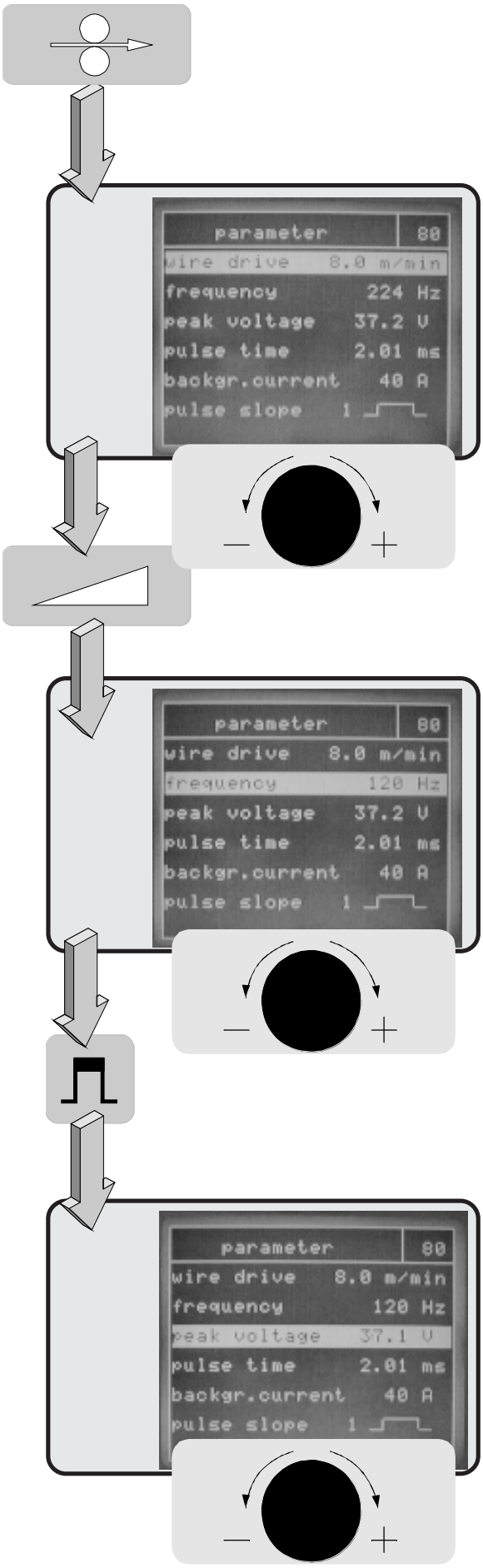
- Actuate the key **Frequency/ Voltage**.

  Set the required frequency.
  The example shows a frequency of **120 Hz**.

- Select the **Pulse (Peak) voltage.**

  Turn the handwheel until the required setting has been reached.

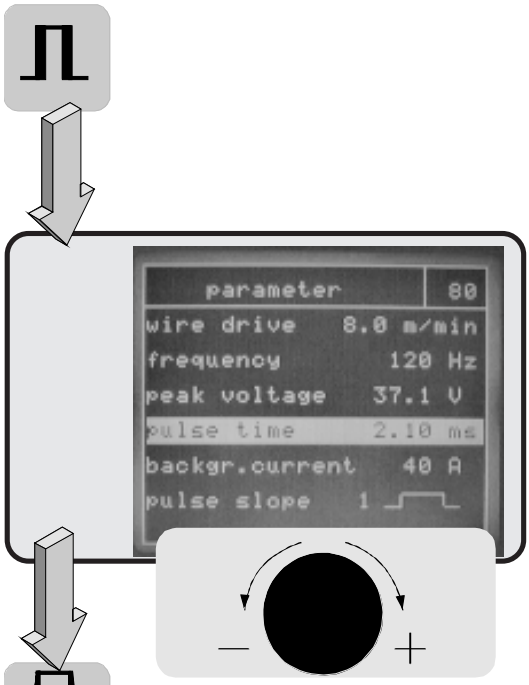
  The example shows **37.1 Volt**.



- Confirm with key
  Pulse time.

Determine the pulse time.

The example shows **2.1 ms.**



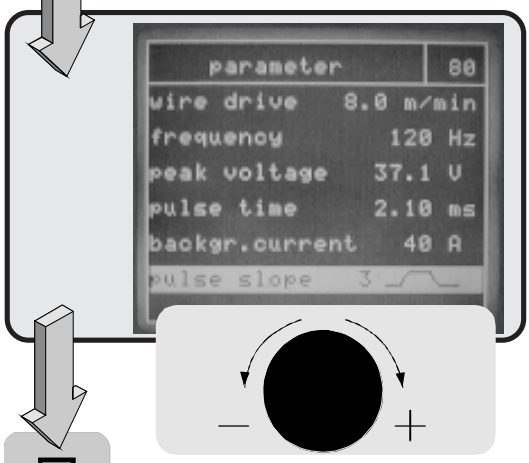
- Press the key **Pulse slope**.

Now select the pulse slope.
You can choose from

1 **steep pulse slope**

to

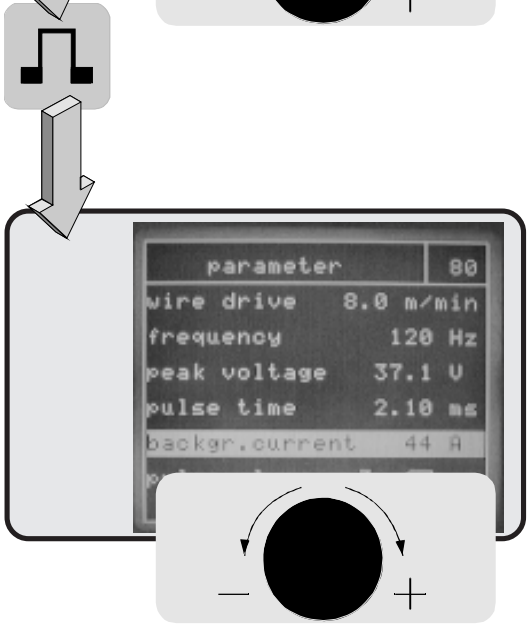
4 **flat pulse slope**



- Actuate the key **Background current**.

The example shows a background current of

44 Amp.



The parameters have now been programmed.

The values for thesequence (run-off) control are now set.

- By pressing the **Gas preflow/ postflow key** the sequence (run-off) control menu is activated.

  First set the **Gas preflow time** with the handwheel.
  The example shows **0.8 seconds**.

  By pressing the gas preflow/postflow key again, the **Gas postflow time** can be set.
  The example shows**: 1.5 seconds**.

- Actuate the key for the **Start-program.**

  The first setting to be made is wire Inching in. Turn the handwheel for your setting.
  Our example shows **1.4 m/min**.

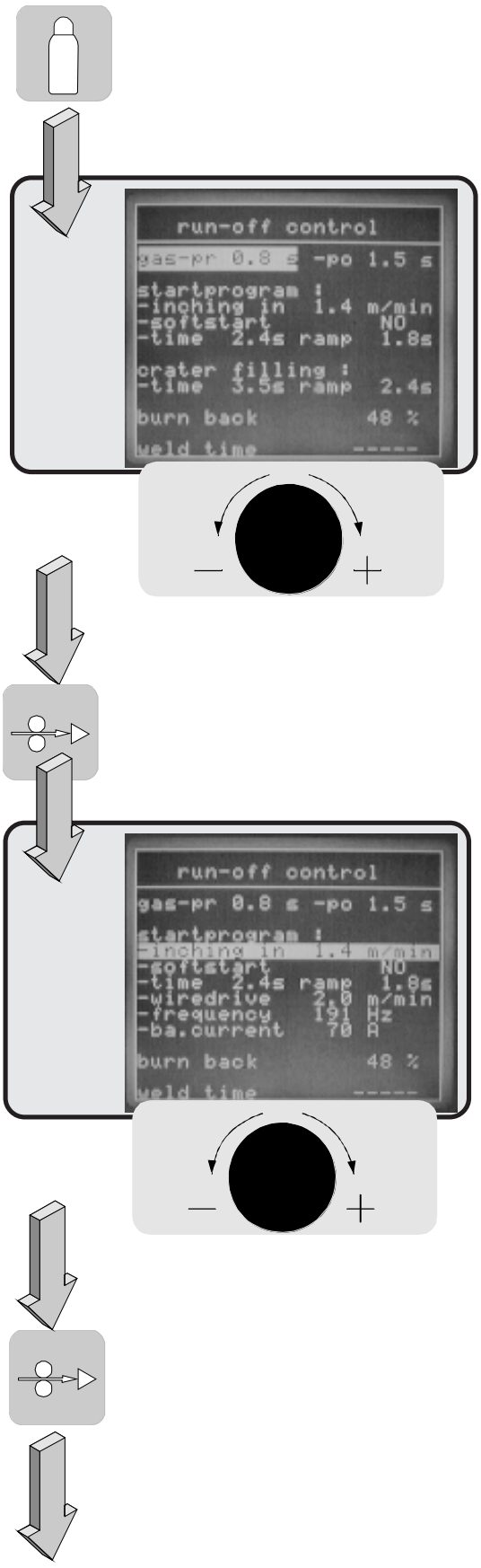
- Actuate the key **Start program** again.

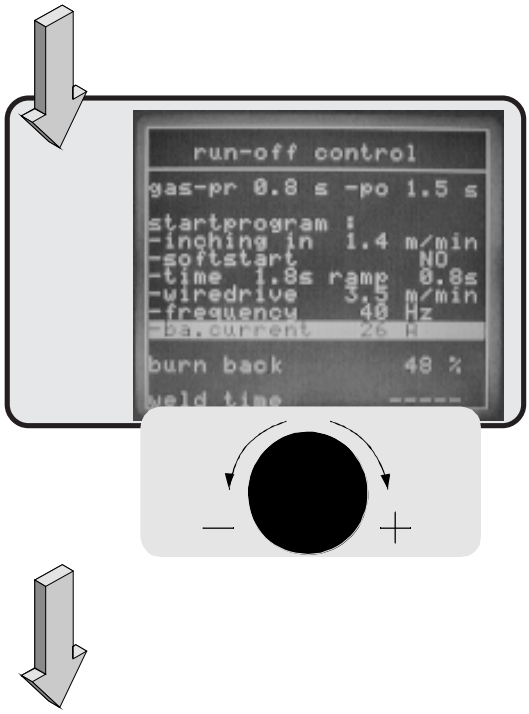
  You can now decide if you require **Softstart** - spatterfree ignition - (see definition). Choose

  YES or **NO.**

- Press the **Start program** key.

  Use the value **Time** to set the duration of the start program.
  Our example shows **1.8 seconds**.





- When pressing the **Start program** key again, a **Ramp** (see definition) can beprogrammed.
  The example shows a time of **0.8 seconds**.

- Actuate the **Start program** key again.

  Enter the **Wire drive** for the Start program.

  The example shows: **3.5 m/min**

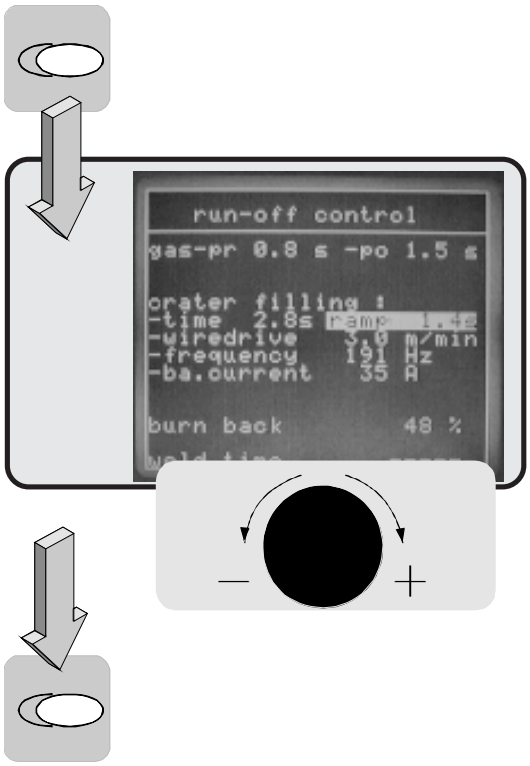
- Actute the **Start program** key.

  Enter the **Frequency** for the Start program:

  Example: **40 Hertz**

- The last value to be selected is the **Base current** for the Start program.

  Example: **26 Amp**



- Actuate the **End Crater filling** key.

  The first setting to be made is the **time** for **Crater filling**.
  Turn the handwheel to select the time.

  The example shows a time of **2.8 seconds**.

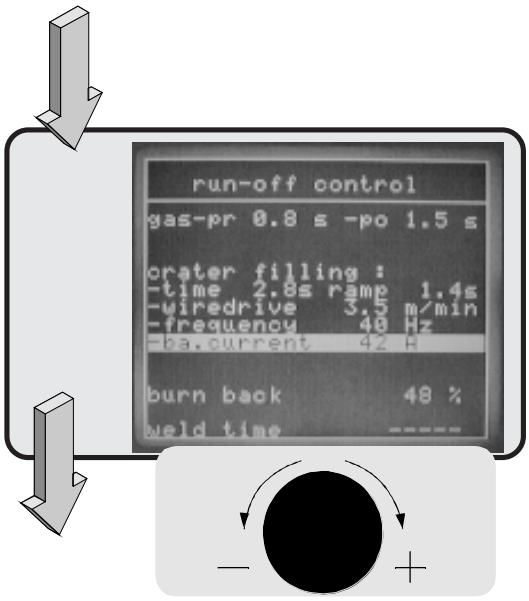
- Actuate the **End Crater filling** key again. Set the ramp.

  The example shows **1.4 seconds**.

- Actuate the **Crater filling** key twice.

  Enter the **Wire drive**
  for crater filling.

  Example: **3,5 m/min**



- Actute the **Crater filling** key.
  The next value to be entered is the
  frequency for crater filling:

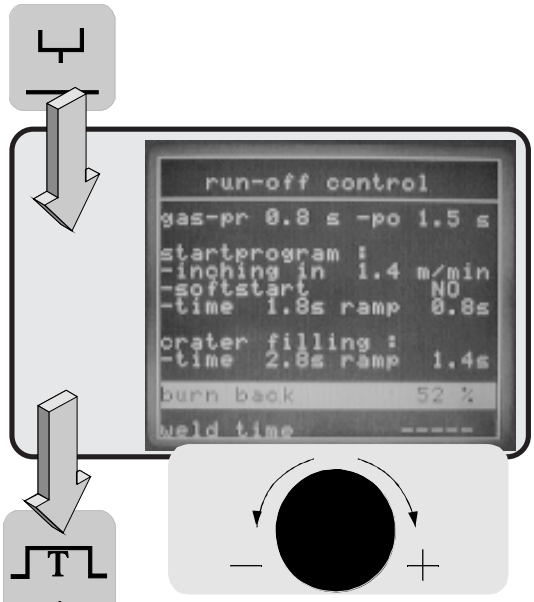
  Example: **40 Hertz**

- The last value to be selected is the
  base current for crater filling. Actuate the
  crater filling key and enter the
  required base current.

  Example: **42 Ampere**

- Use the **Burn back** key to select
  the next value.

  The example shows a burn back
  of **52 %**.



- Actuate the key for
  Weld time. With the weld time
  a list continuation is enabled.

  The list continuation function is
  used for simple mechanized welding tasks.

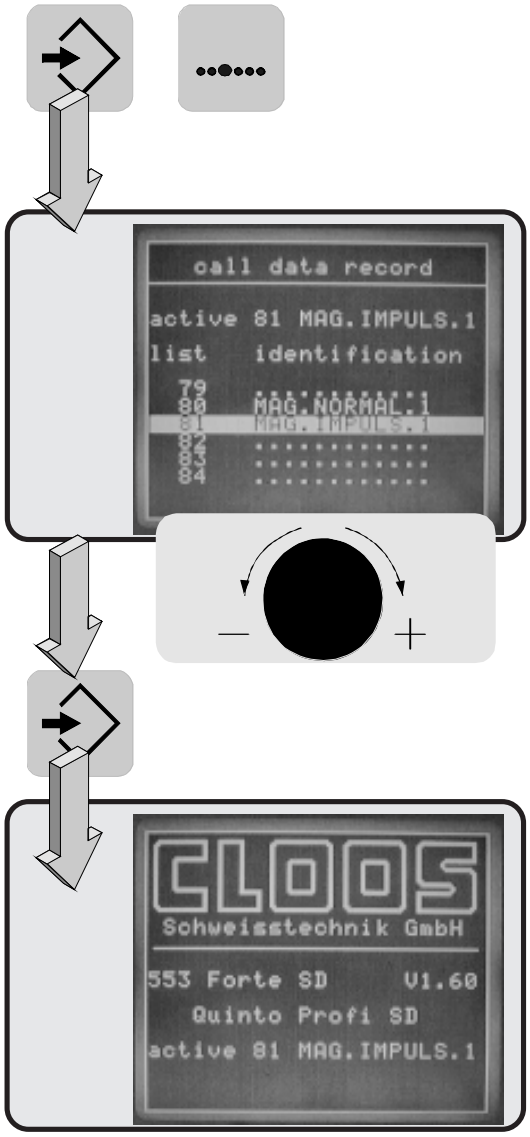
  In the example a weld time of
  0 seconds is entered, which
  deactivates the list contiuation.

All values have been programmed.
The list has to be stored now.

- Actuate the keys **Store** and then **Cursor position**.

  By turning the handwheel, numbers and letters can be called, which appear in the same line as the actual list number. Procedure:

  - Turn the handwheel to choose a letter or number.
  - Press the **Cursor position** key. The cursor jumps to the next place.
  - By turning the handwheel a letter or number is choosen for this place.
  - Repeat this process until the required list name has been entered.



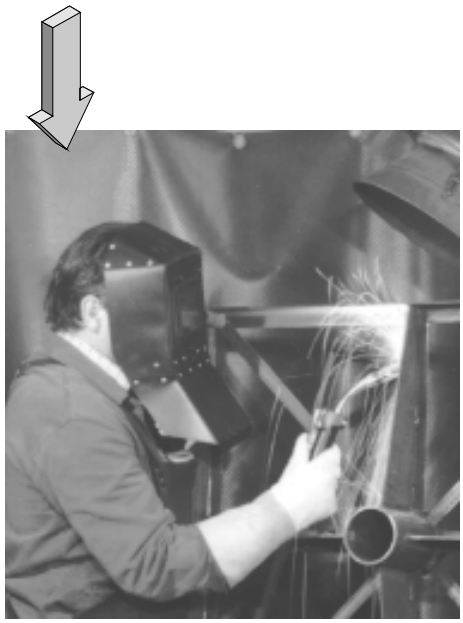
- By pressing the **Store** key, all programmed values are stored under the list number and the list name.

  The example shows:

  81 MAG . Impuls . 1

  Weld parameter list 80 is active now.

Programming has been finished now.
You can start welding.



Caution

Protect eyes and skin against arc radiation!
Wear protective clothing!

P3 Programming a weld parameter list for MIG welding with pulse and I/I control

Wire diameter:	1.2	Gas:	Argon
Material:	Aluminium	Seam shape:	Fillet weld
Weld current:	185 A		

- Starting point for programming is the main menu.
  Weld parameter list 1 is active.

- Actuate the key
  Call up weld parameter list

  The active weld parameter list is highlighted. The example shows weld parameter list 1.

- Turn the handwheel until a free space is active.

  The example shows list 82.

- Press the key **Procedure**.

- The following procedures are shown:
  - MAG Normal
  - MAG Pulse U/I
  - MAG Pulse I/I
  - TIG
  - Electrode

  Select the procedure: **MAG Pulse I/I** by turning the handwheel.

- Actuate the key **Operational mode**.
  You may select:
  - 2 cycle
  - 4 cycle
  - Start external
  - Spot welding
  - Super 4 cycle

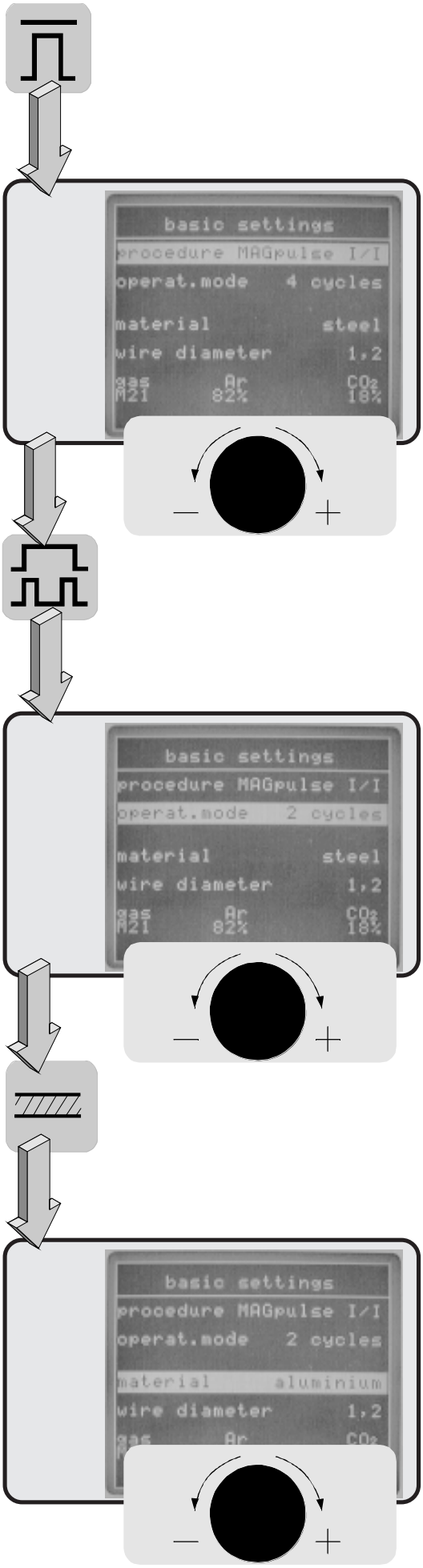
  (The operating modes are explained in the appendix)

  The example shows the operational mode **2 cycle.**

- Actuate the key **Material**

  You can select:
  - Steel
  - CRNI (Chrome-Nickel)
  - Aluminium

  The example shows the material **ALUMINIUM**.



- After pressing the **Wire diameter** key, select the wire you wish to use.
  You can choose any wire diameter between

  0.8 and **2.4 mm.**

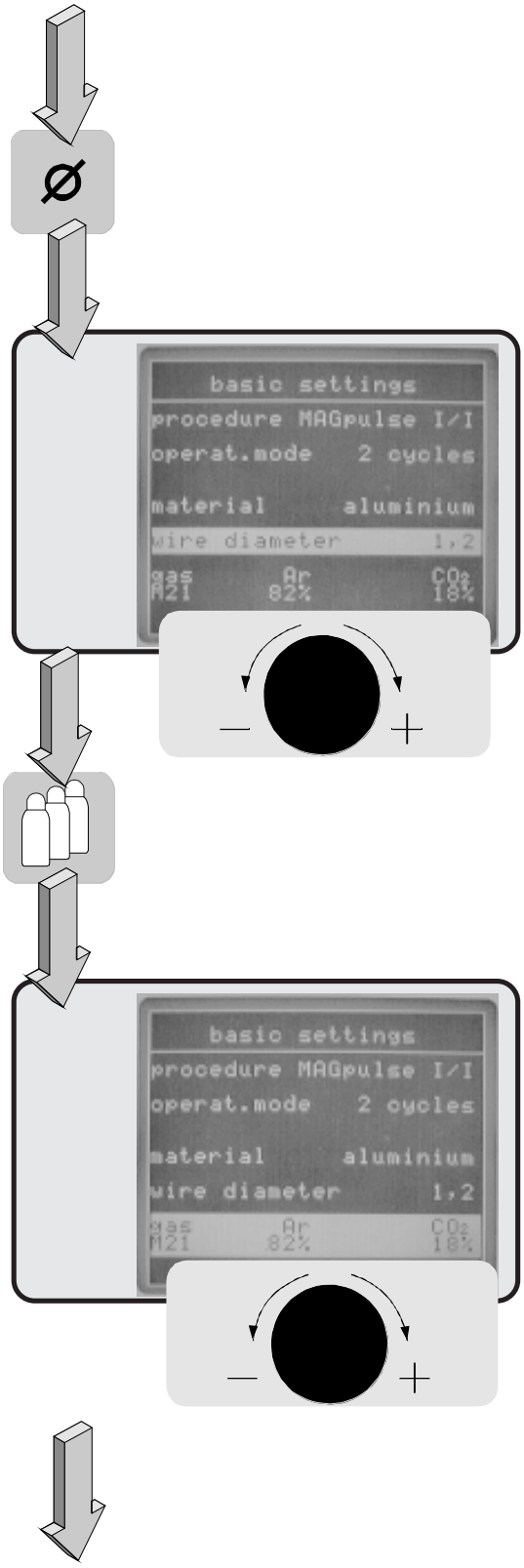
  The example shows a wire diameter of **1.2 mm**.

- The last basic setting is the **Gas type.**
  The following gases are available for MIG aluminium welding:

  - 50% Ar 50 % He
  - 100 % Ar

  We have choosen the following gas:

  100 % Argon



The basic settings have now been programmed.
We continue onn the next page with the parameter settings.

- Press the key **Wire drive**.

- Set the required wire drive by turning the handwheel.

  In our example the wire drive is **8.0 m/min**.

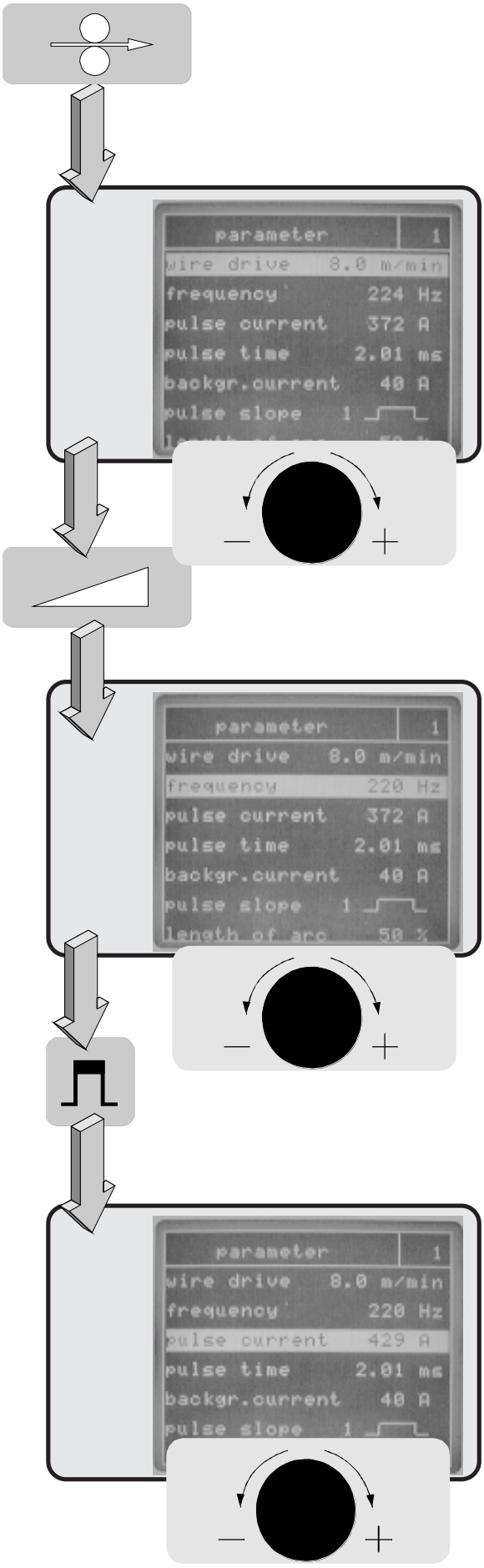
- Actuate the key **Frequency/ Voltage**.

  Set the required frequency.
  The example shows a frequency of **220 Hz**.

- Select the **Pulse current.**

  Turn the handwheel until the required setting has been reached.

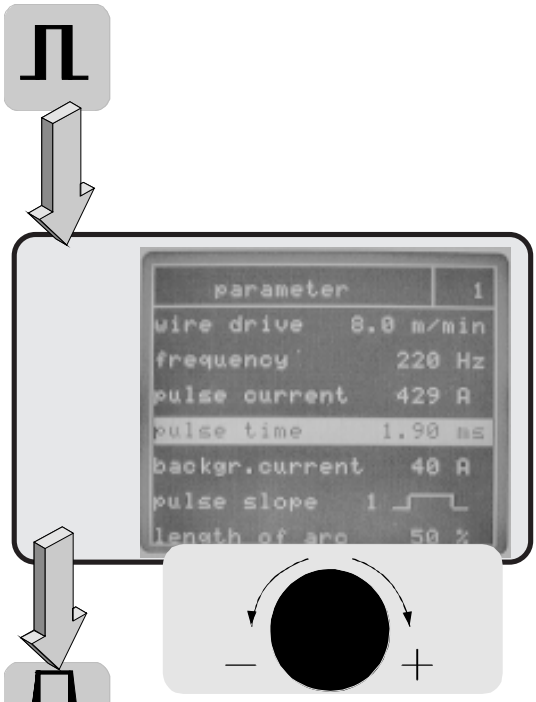
  The example shows **429 Amps**.



- Press the key
  Pulse time.

Determine the pulse time.

The example shows **1.9 ms**.



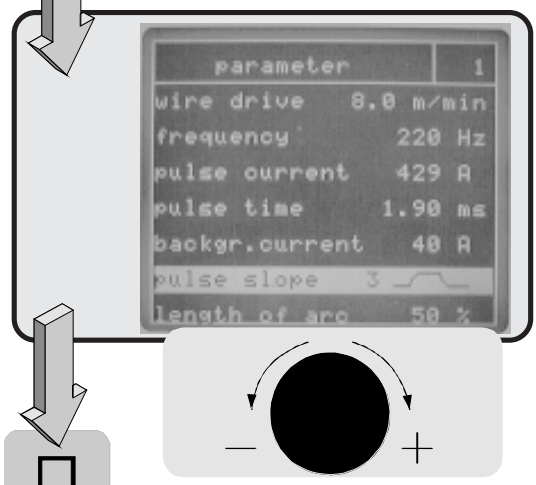
- Press the key **Pulse slope**.

Select the pulse slope now.
You can choose from

1 **steep pulse slope**

to

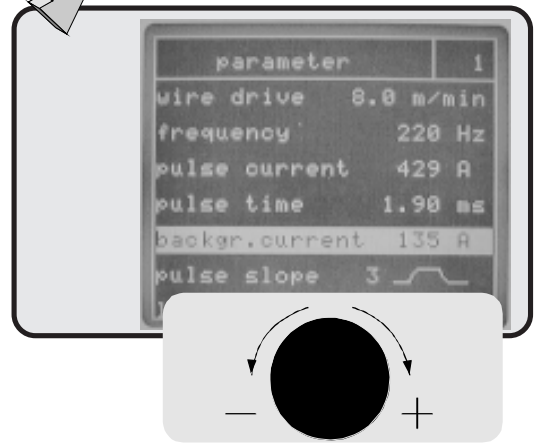
4 **flat pulse slope**



- Press the key **Background current (base current)**.

The example shows a background (base) current of

135 Amps



- The last parameter to be programmed is the **Length of arc (Arc length)**. Press the key Arc length.

  Turn the handwheel to select a value.
  The example shows
  58 %.

- By pressing the **Gas-preflow/Gas-postflow key** the run-off control menu is activated.
  Turn the handwheel to set the **Gas-preflow time**.
  The example shows **0.8 seconds**.

  By pressing again the gas preflow/ postflow key, the **Gas postflow time** can be set.
  The example shows **1.5 seconds**.

- Actuate the key for **Start-program.**

  The first setting to be made is wire **Inching in**. Turn the handwheel for your setting.
  The example shows **1.4 m/min**.

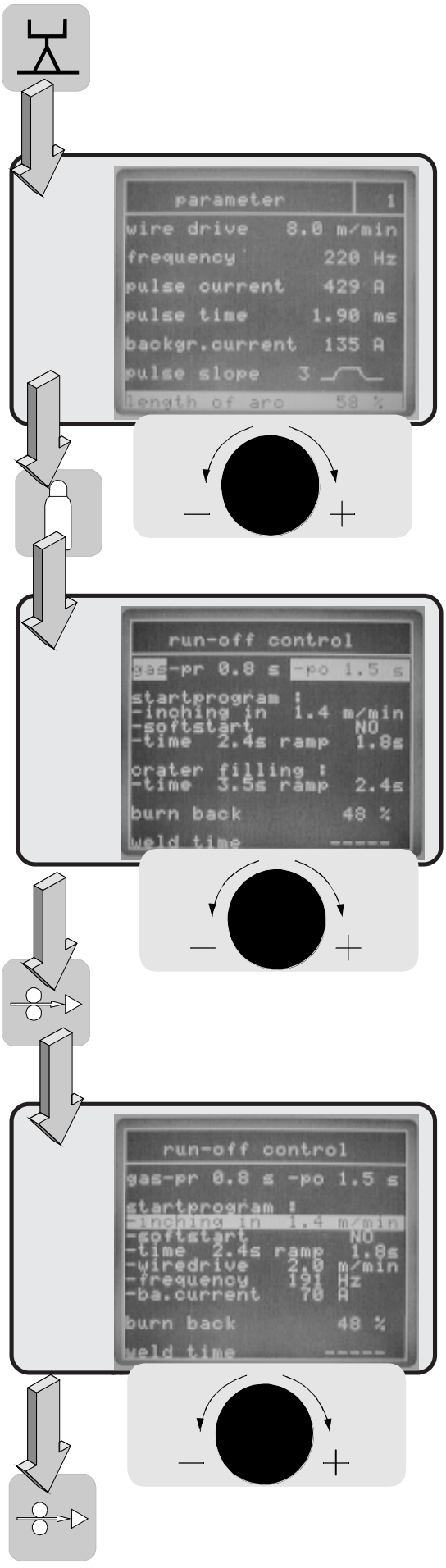
- Actuate the **Start program** key again. You can now decide if you require **Softstart** (spatterfree ignition).

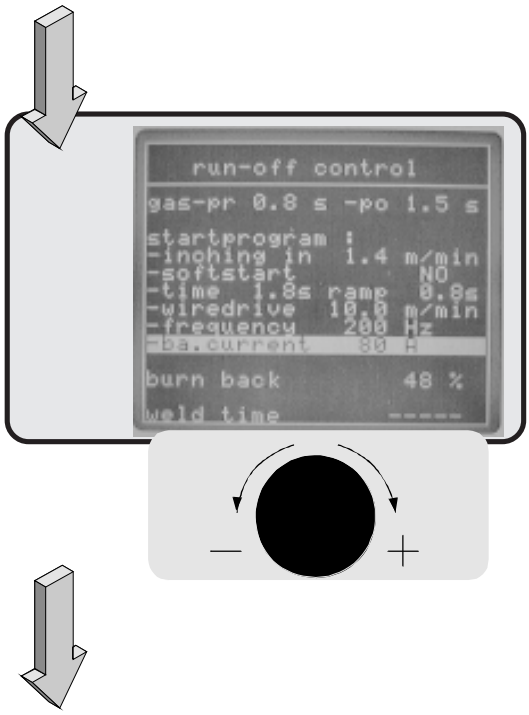
  Choose

  YES or **NO.**

- Press the **Start program** key.

  Use the value Time to set the duration of the start program.
  Our example shows **1.8 seconds**.





- By pressing the **Startprogramm** key again, a **Ramp** can be programmed. The example shows a time of **0.8 seconds**.

- Actuate the **Start program** key again.

  Enter the **Wire drive** for the Start program.

  Example: **10 m/min**

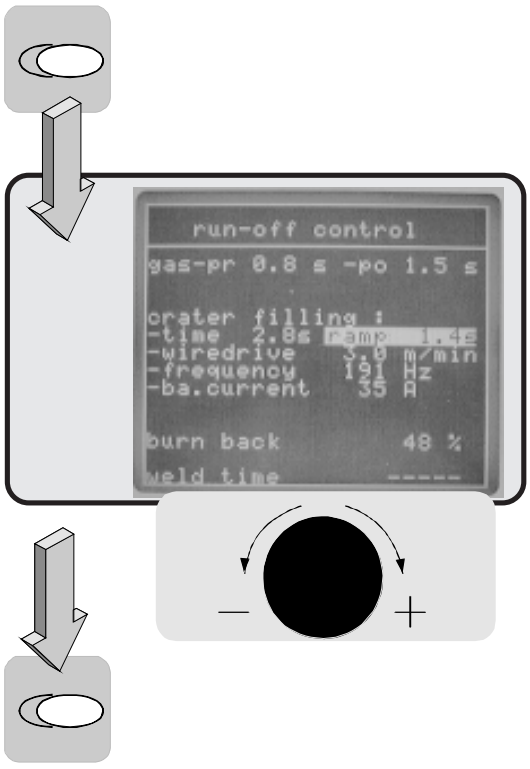
- Actuate the **Start program** key.

  Enter the **Frequency** for the start program.

  Example: **280 Hertz**

- The last value to be set is the **Background current (Base current)** for the Start program.

  Example **170 Amps**



- Actuate the **End Crater filling** key.

  The first setting to be made is the **Time** for **End Crater filling**. Turn the handwheel to select the time.

  The example shows a time of **2.8 seconds**.

- Actuate the key **End Crater filling** again. Adjust the ramp. (see definition)

  Example: **1.4 seconds**.

- Actuate the **Crater filling** key again. Enter the **Wire drive** for end crater filling.

  Example: **3.0 m/min**

- Actuate the **End Crater filling** key. The next value to be entered is the **Frequency** for end crater filling:

  Example: **58 Hertz**

- The last value to be selected is the **Background (Base) current**. Actuate the Crater filling key and enter the required background (base) current.

  Example: **42 Amps**

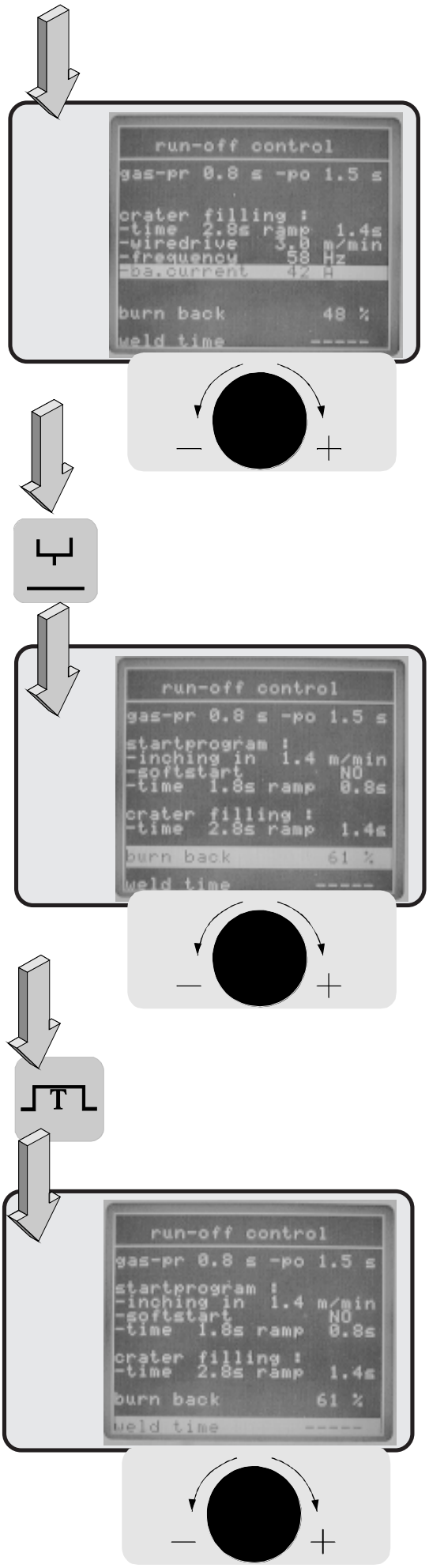
- Select the next value by pressing the **Burn back** key.

  The example shows a burn back of **61 %**.

- Press the key for the **Weld time**. The weld time enables a list continuation to be made (see definition).
  The list continuation function is used for simple automated welding tasks.

  Our example shows a weld time of **0 seconds**, which deactivates the list continuation.

All values have now been programmed.
The list must now be stored.

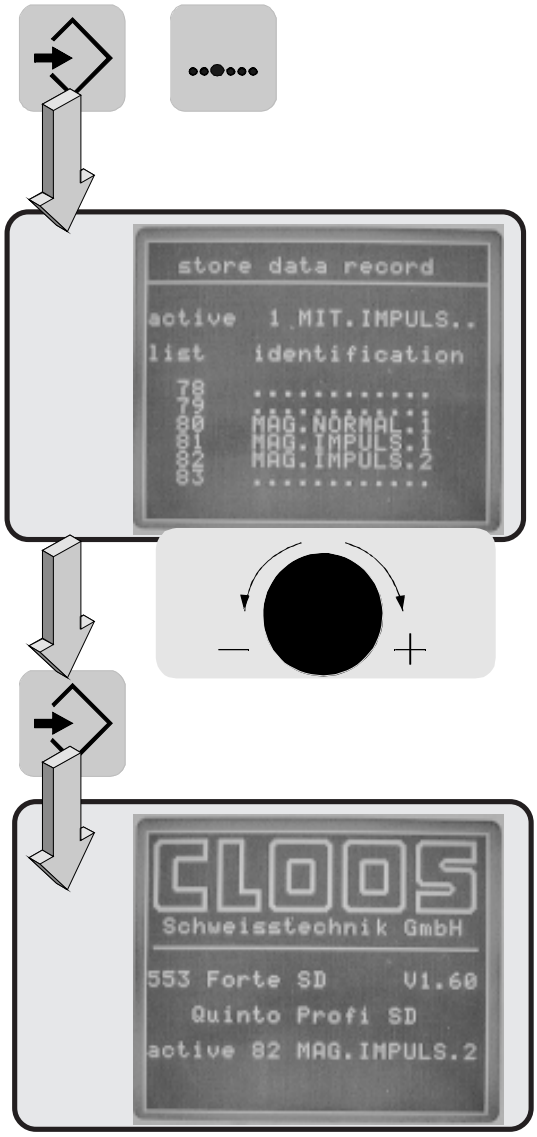


- Actuate the key **Store (Save)** and then key **Cursor position**.

  By turning the handwheel, numbers and letters can be called up and these appear in the same line as the current list number.

  Procedure:

  - Turn the handwheel to select a letter or number.
  - Press the **Cursor position** key. The cursor goes to the next space.
  - A letter or number for this space can be selected by turning the handhweel.
  - Repeat this proces until the required list name has been entered.



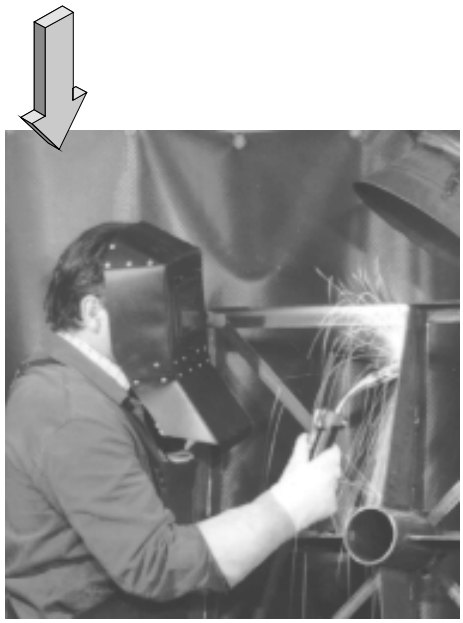
- By pressing the key **Store** all programmed values are saved under the list number and the list name.

  Example:

  82 MIG . Impuls . 2 (Pulse.2)

  Weld parameter list 82 is active.

Programming has now been completed and you can start welding.



Caution

Protect eyes and skin against arc radiation!
Wear protective clothing!

P4 Programming a weld parameter list for TIG welding

Electrode diameter:	2.0	Gas:	Pure Argon
Material:	Chrome Nickel		

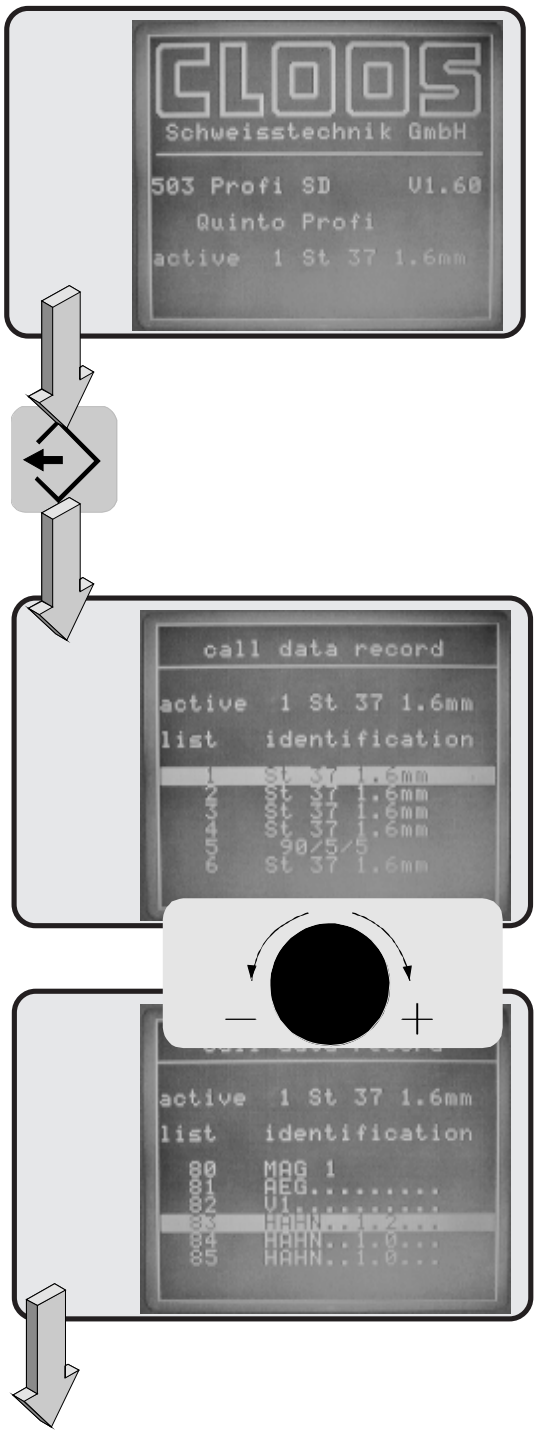
- Starting point for programming is the main menu.
  Weld parameter list 1 is active.

- Actuate the key
  Call up weld parameter list.

  The active weld parameter list is highlighted.
  The example shows weld parameter list 1.

- Turn the handwheel until a free space is active.

  The example shows list 83.



- Actuate the key **Procedure**.

- The following procedures are available:
  - MAG Normal
  - MAG Impuls U/I
  - MAG Impuls I/I
  - TIG
  - Electrode

- Turn the handwheel to select the procedure **TIG**

- Actuate the key **Operational mode**.

With the TIG process, only the operational mode

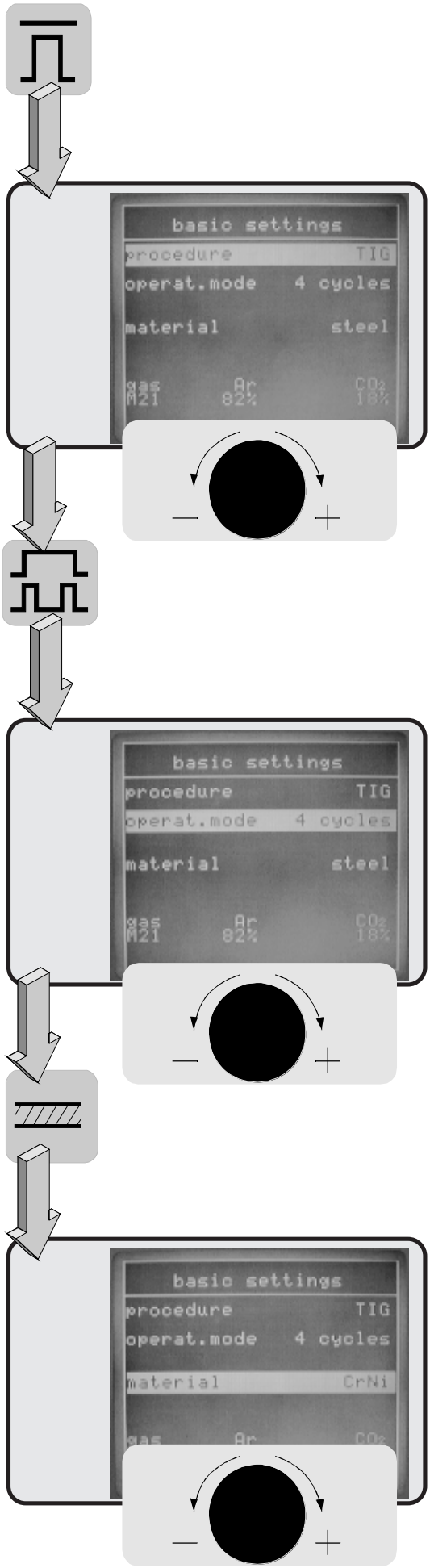
- **4 cycles**

can be used for welding.

- Actuate the key **Material.**

You can choose between:
- Steel
- CRNI (Chrome-Nickel)

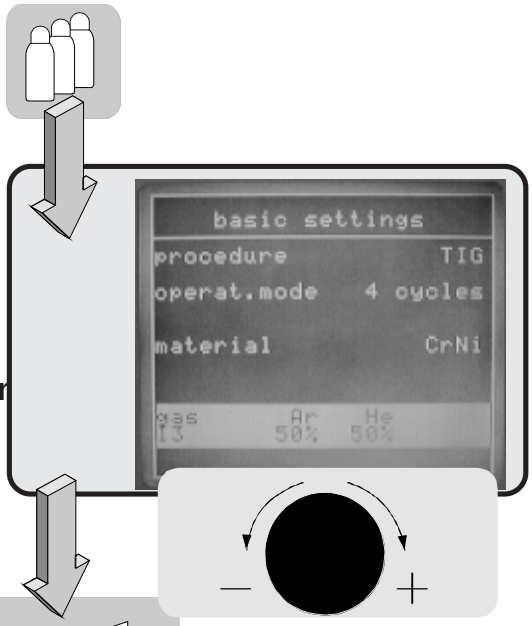
In the example, the material **CRNI** has been selected.



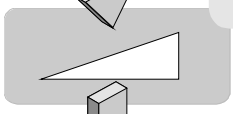
- The last basic setting is the **Gas** type. The following gases are available for TIG welding:

  - 50 % Ar 50 % He
  - 30 % Ar 70 % He
  - 94 % Ar 6 % H_2
  - 98 % Ar 2 % H_2
  - 100 % Ar

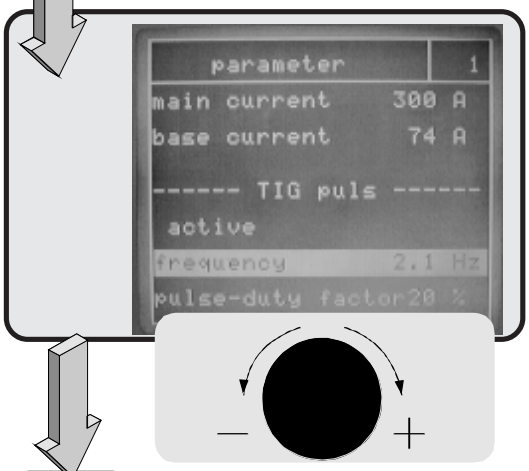
  We have chosen the following gas: **100 % Argon**



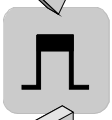
- Actuate the key **Frequency/ Voltage**.



Set the required frequency. The example shows a frequency of **2.1 Hz**.

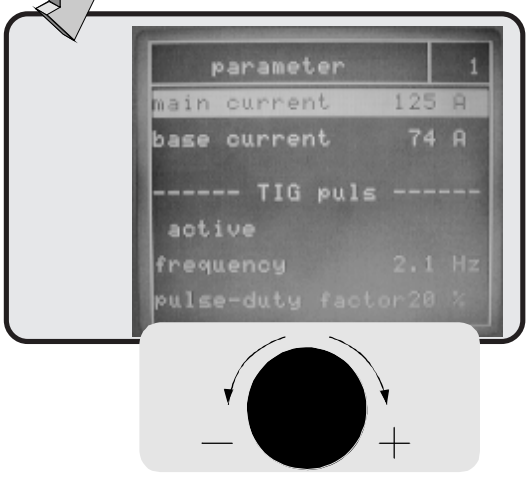


- Select the value **Pulse voltage /main current**.



Turn the handwheel until the required setting has been reached.

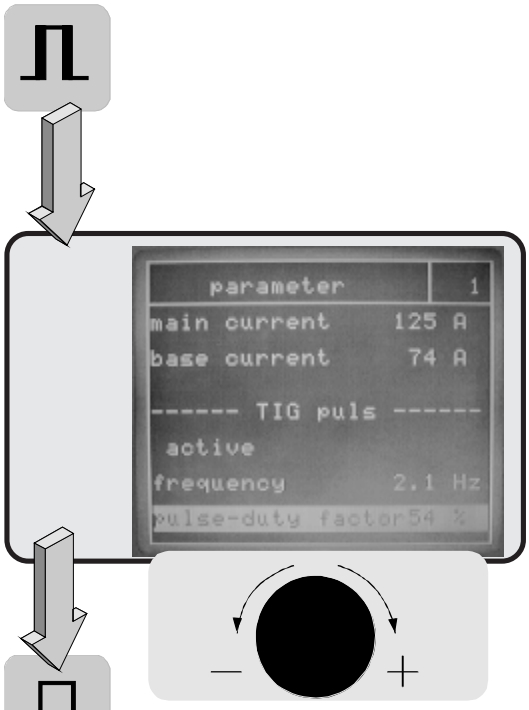
The example shows. **125 Amps**.



- Actuate the key **Pulse-duty factor**.

Determine the pulse duty factor.

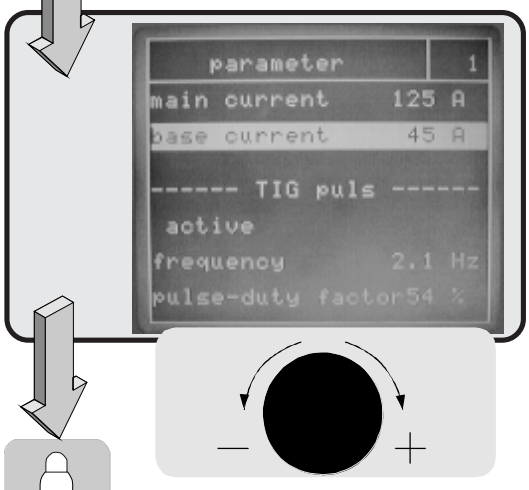
The example shows **54 %**.



- Select the **Base current**.

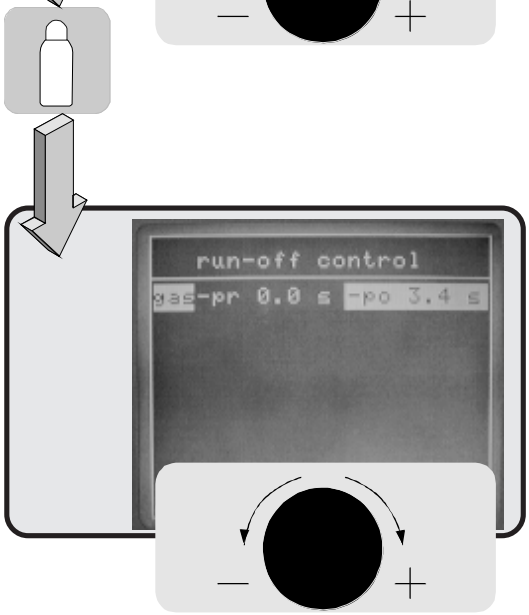
The example shows a base current of

45 Amps



- By pressing the key **Gas preflow/ postflow** the run-off (sequence) control menu is activated.

The **Gas postflow** can be set.
Example: **3.4 seconds**.



- Actuate the key for **Weld time**. The weld time enables a list continuation to be made.

  In the example a weld time of **0 seconds** is entered, which deactivates the list continuation.

- Actuate the keys **Store (Save)** and then **Cursor position**.

  By turning the handwheel, numbers and letters can be called up and these appear in the same line as the current list number.

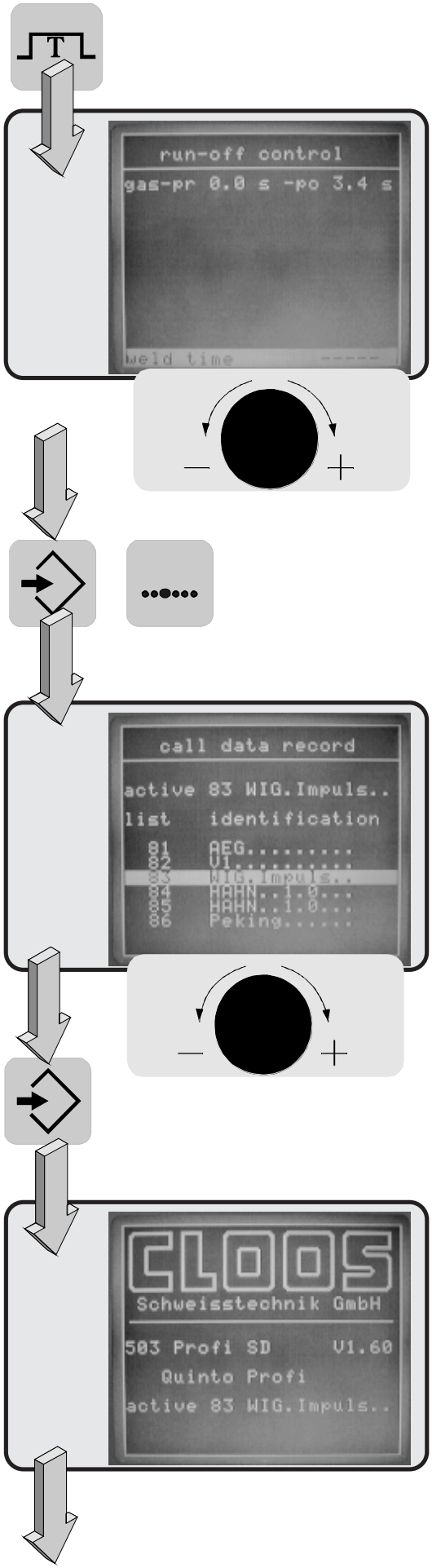
  Procedure:

  - Turn the handwheel to select a letter or number.
  - Press the **Cursor position** key. The cursor goes to the next space.
  - A letter or number can be selected for this space by turning the handwheel.
  - Repeat this process until the required list name has been entered.

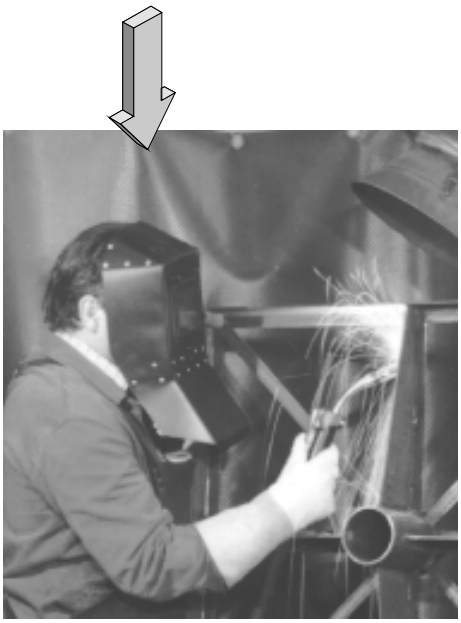
- By pressing the **Store (Save)** key, all programmed values are stored under the list number and the list name.
  Example:

  83 WIG (TIG)

  List 83 is active.



Programming has now been completed and you can start welding.



Caution

Protect eyes and skin against arc radiation!
Wear protective clothing!

P5 Programming a parameter list for welding with coated electrodes

- Starting point for programming is the main menu.
  Weld parameter list 80 is active.

- Press key
  Call up weld parameter list

  The active weld parameter list is highlighted.
  Example: weld parameter list 80

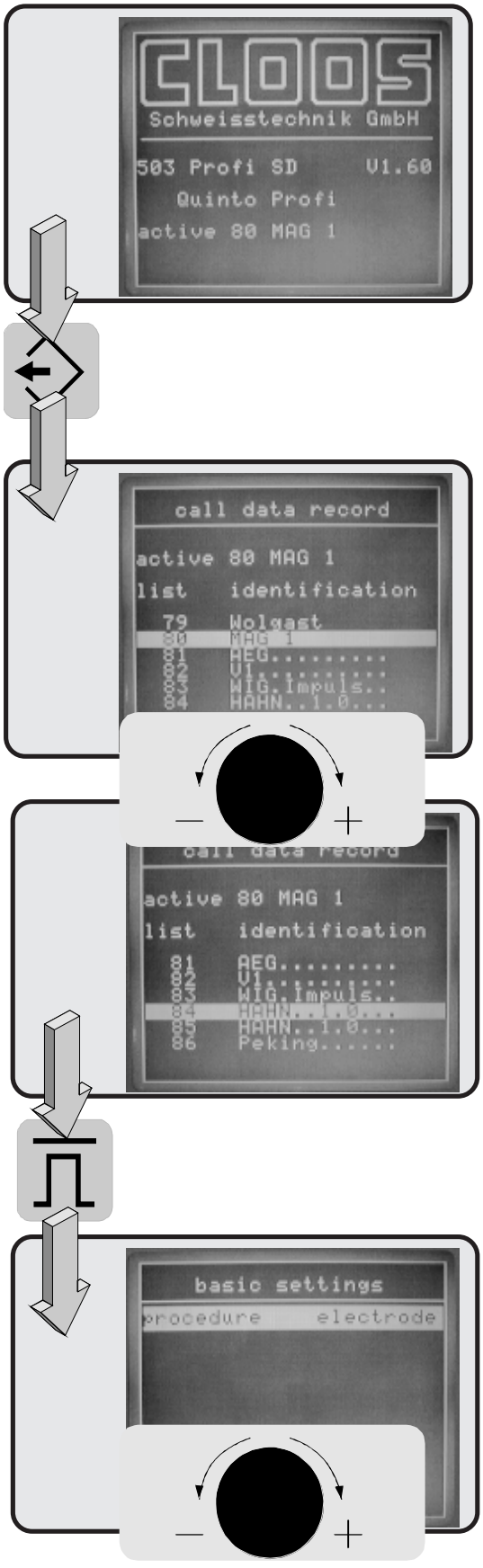
- Turn the handwheel until a free space is active.

  Example: List 84.

- Press the **Procedure** key.

  The following procedures are available:
  - MAG Normal
  - MAG Pulse U/I
  - MAG Pulse I/I
  - TIG
  - Electrode

  Select the procedure **Electrode** by turning the handwheel.



- Press the key **Frequency/Voltage**

Set the required weld current.
In the example shown, a current of **88 Amps** is set.

- Actuate the keys **Store** (Save) and then **Cursor position**.

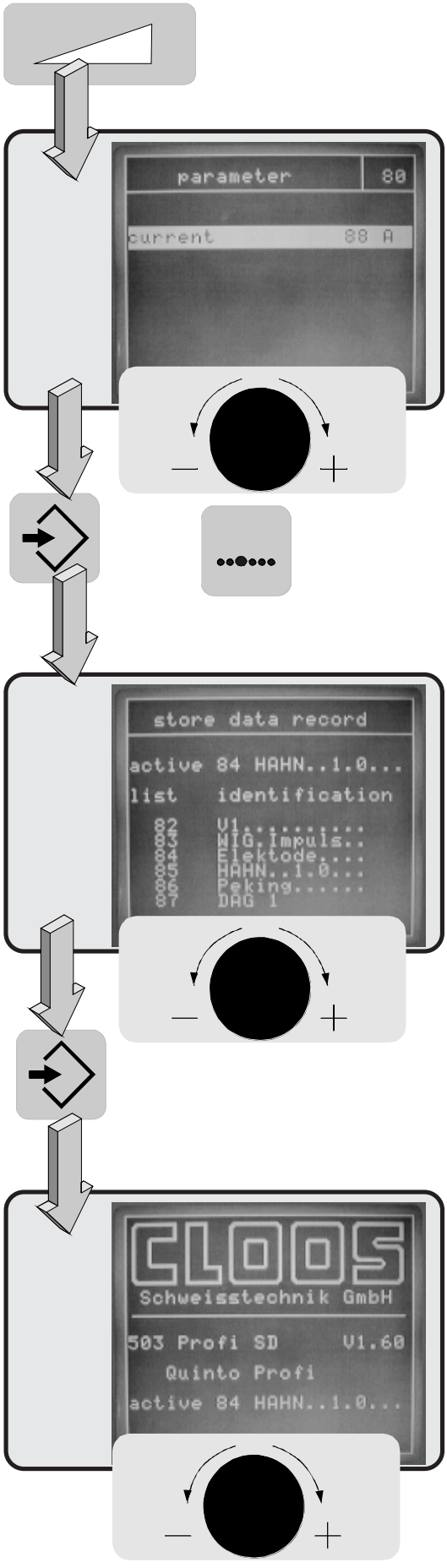
By turning the handwheel, numbers and letters can be called up and these appear in the same line as the current list number.
Procedure:

  - Turn the handwheel to select a letter or number.
  - Press the **Cursor-Position** key. The cursor goes to the next space.
  - A letter or number can be selected for this space by turning the handwheel.
  - Repeat this process until the required list name has been entered.

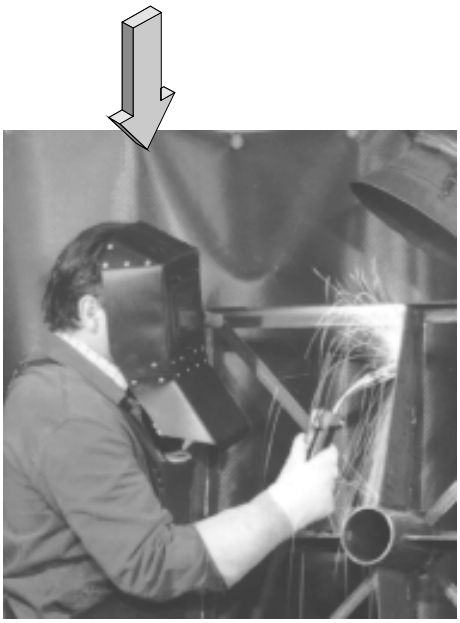
- By pressing the **Store (Save)** key, all programmed values are saved under the list number and the list name.
Example:

84 Electrode

Weld parameter list 84 is active.



Programming has now been completed and you can start welding.



Caution

Protect eyes and skin against arc radiation!
Wear protective clothing!

P6 Alteration of a value in the weld parameter list

Alterations in the weld parameter list can be carried out

- between two welds
- during the welding process.

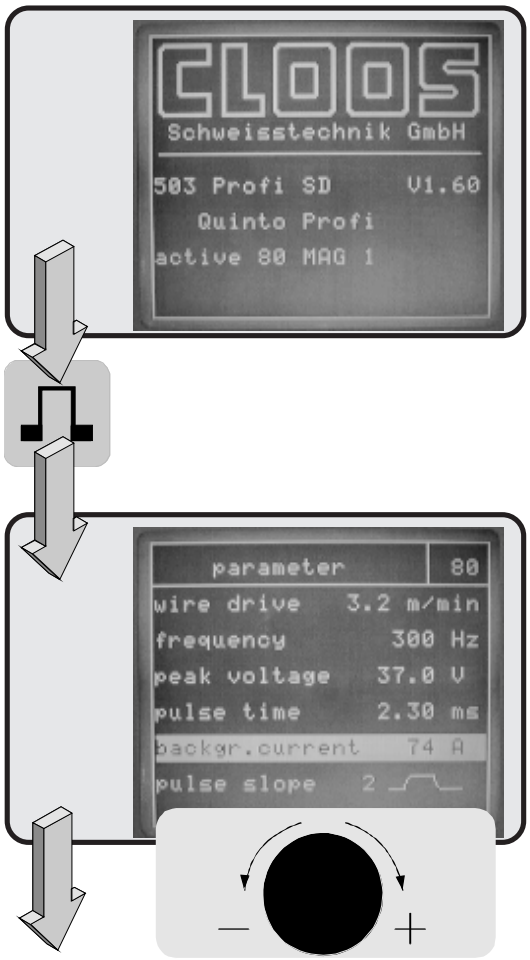
NOTE!

Please note that the changes are saved if:

- **the Save key is pressed twice,**
- **automatic saving is active** (see function keys)**.**

1. Example: Changing the background (base) current

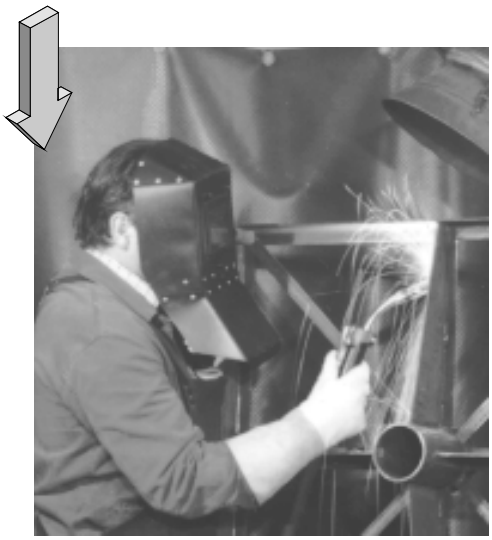
- List 81 is used for welding and you want to change the background (base) current.



- Press the **Background (Base) current** key.

The background (base) current is changed by turning the handwheel.

- Carry out a trial weld.

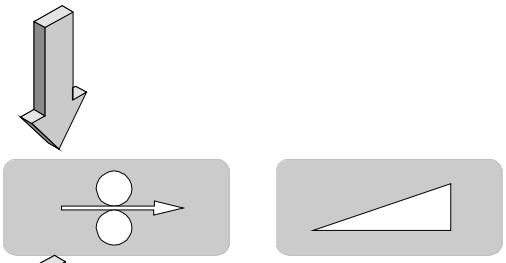


Caution

Protect eyes and skin against arc radiation!
Wear protective clothing!

- Alter the selected value until the required weld result is obtained.

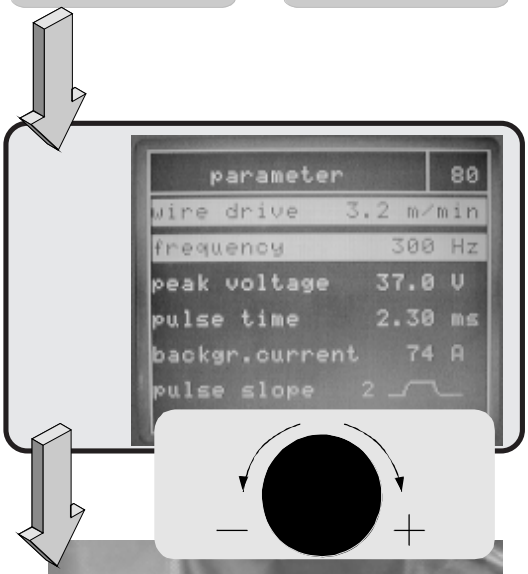
You can alter one or several value(s) one after the other here. Just press the selector key for the reqired value. Turn the handwheel to correct the relevant value.
In the example, the capacity of the arc is to be altered.



- Simultaneously actuate the keys **Wire drive** and **Frequency**.

- Both values are active and can be altered by the **Single-knob procedure**.

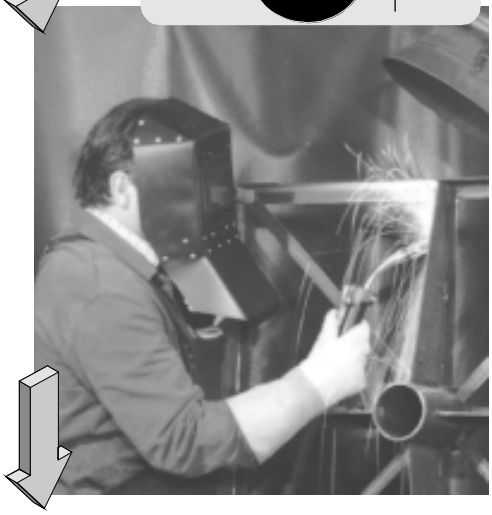
  The Single-knob procedure means that both values are altered proportionally depending on the sens of rotation of the handwheel.



Caution

Protect eyes and skin against arc radiation!
Wear protective clothing!

- Carry out a trial weld and alter the selected value until the required weld result is obtained.



Please proceed as described above, if more values have to be altered.
The weld parameter list must be saved as soon as the required settings have been completed.

- Actuate the **Save** key twice.

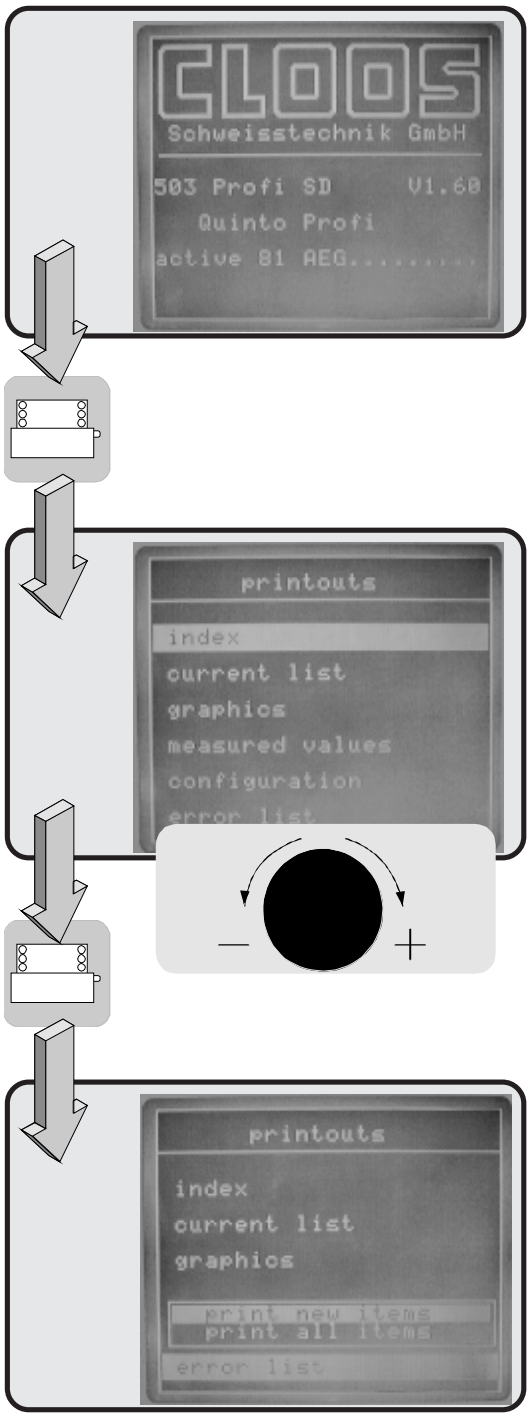
- The new values are now saved in the weld parameter memory and weld parameter list 81 is active.

P7 Printing (Printout)

Following information can be printed out:

- Index of weld parameter lists entered
- Programmed values of the current weld parameter list
- Wire drive, weld current and weld voltage graphics of the last seam
- Measured values of the last weld seam
- Welding machine configuration
- Error lists (Option Weld data monitoring SD)

For printout please proceed as follows:



- Press the **Printout** key.

  Turn the handwheel to select the data to be printed out.

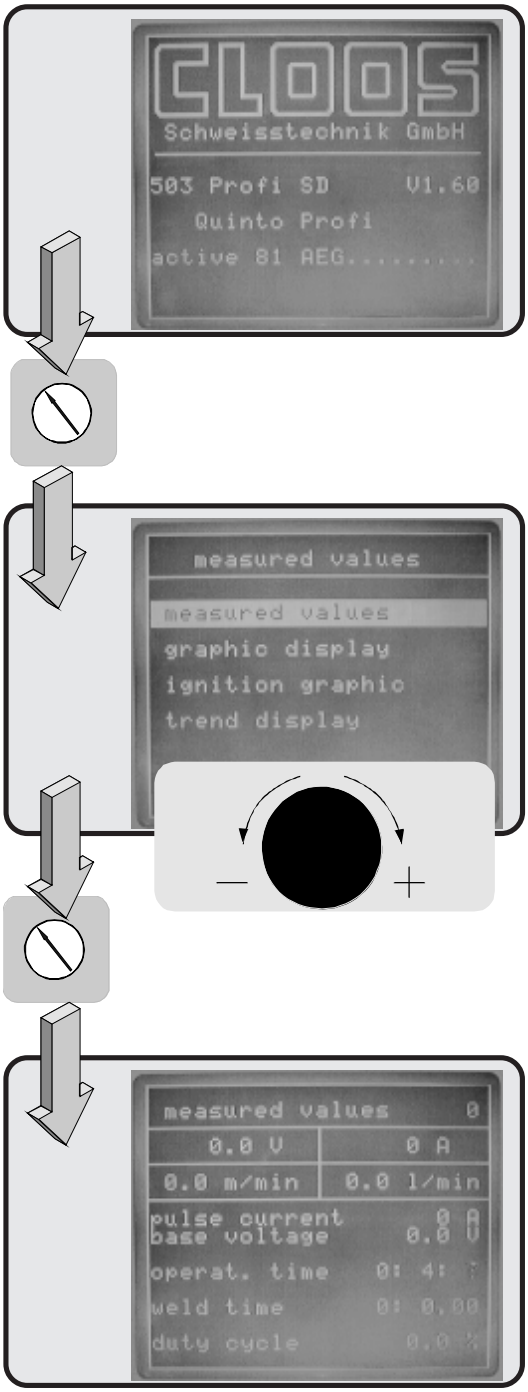
- When the Print key is pressed, the data is printed out.

  If you wish to print the error list, please choose whether all items are to be printed out or only the new items, which have been added after the last printout.

P8 Measured values

The following measured values can be shown on the **QUINTO *Profi*** display:

- Measured values of the last weld seam
- Graphics for wire drive, weld current and weld voltage
- Ignition graphics
- Trend display
  (Option Weld data monitoring SD)



If you want to read the measured values on the display, please proceed as follows:

- Press the **Measured values** key.

  Turn the handwheel to select which measured value(s) is (are) to be indicated.

- Actuate the **Measured values** key.

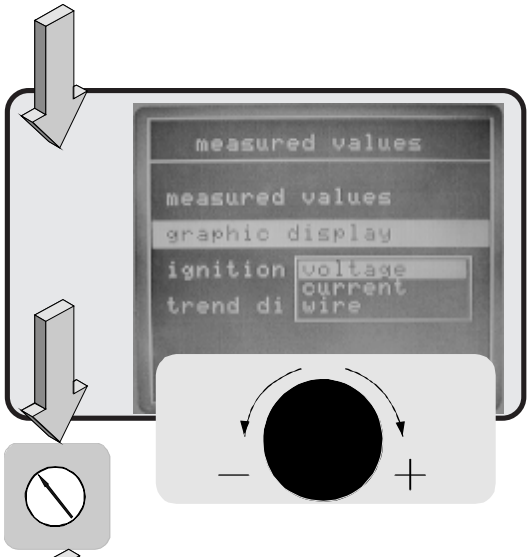
  The following data is shown:

  Seam (continuous number) or seam counter
  Weld voltage*
  Weld current*
  Wire feed speed*
  Gas throughput*
  Pulse current*
  Base voltage*
  Operating time
  Weld time
  Duty cycle

* Measured values refer to the last weld seam.

After selecting Graphic display and pressing the Measured value key, the following values can be selected:

- Weld voltage
- Weld current and
- Wire drive

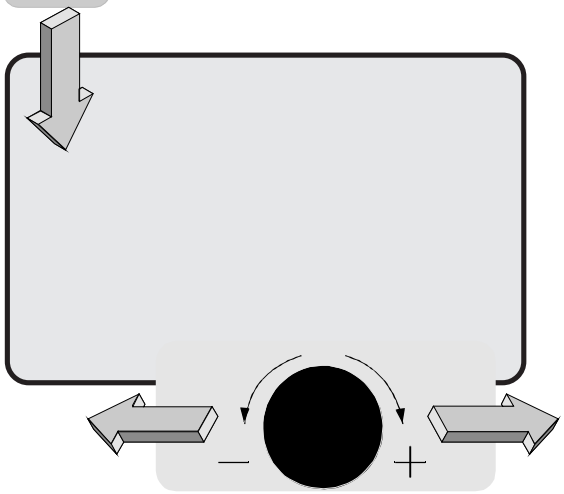


- Press the **Measured values** key.

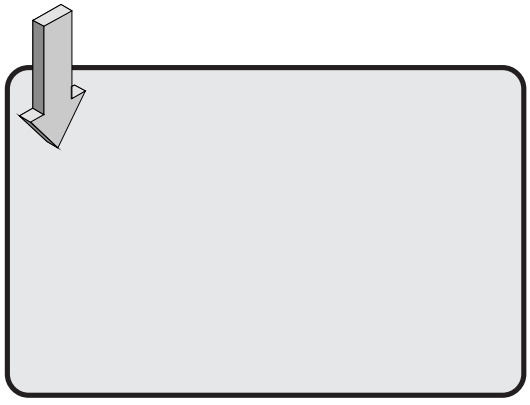
A curve of the selected values is shown.

The diagram resolutation is shown above the chart.

By turning the handwheel the section of the diagram shown can be moved forwards or backwards.



If you choose for **Ignition graphics,** the following diagram is shown:



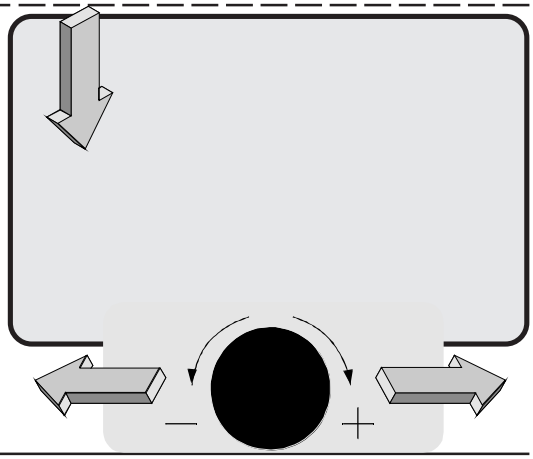
- Weld voltage

and

- weld current

for the last weld seam during the ignition phase are shown.

With **Trend display** , long-term processes can be monitored. Current tip wear or contamination of wire guide liners can affect the arc. This can be monitored with Trend display.



P9 Function keys

The following operations can be carried out with the function keys:

- **F1** **ALUPLUS** (to weld aluminium with pulse and U/I regulation)
- **F2** **Wire retract**
- **F3** **Manual**
- **F4** **Special functions**
- **F5** **Weld data monitoring** (**QUINTO** *Profi* **SD** only)

P9.1 F1- ALUPLUS

The ALUPLUS can be used if

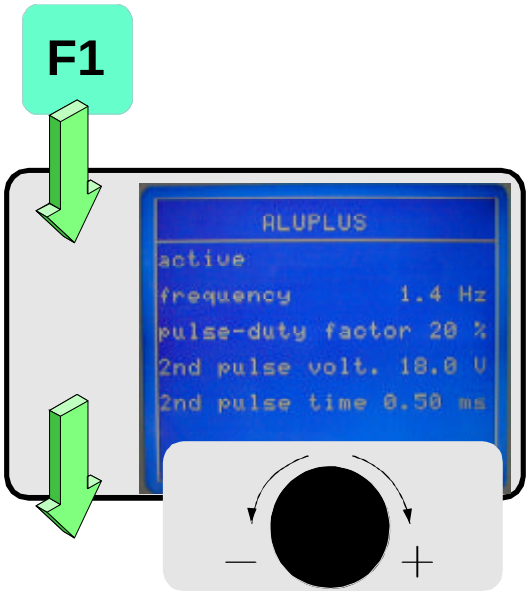
- the welding process **MAG Puls U/I**

and

- the material **Aluminium**

have been programmed. The programmed values are stored with the standard values in the weld parameter list.

- Press the F1 key to program **ALUPLUS**.

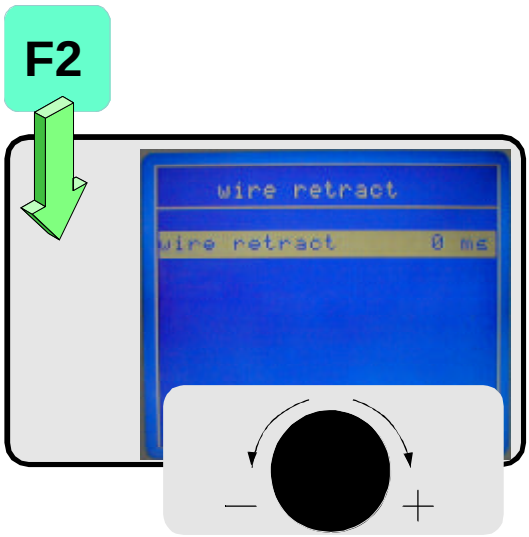


By turning the handwheel, the values shown can be changed one after the other. Use the **F1** key to jump to the next value:

1. Switching ALUPLUS on/off
2. Frequency: 0,5 to 10,0 Hz
3. Pulse-duty factor: 20 to 80 %
4. 2nd Pulse voltage: 15 to 50 V
5. 2nd Pulse time: 0,50 to 5 ms

P9.2 Wire retract

- Press the **F2** key.
  The **Retract time** is entered now.



Turn the handwheel to program the required retract time.

Setting range: 0 to 100 ms

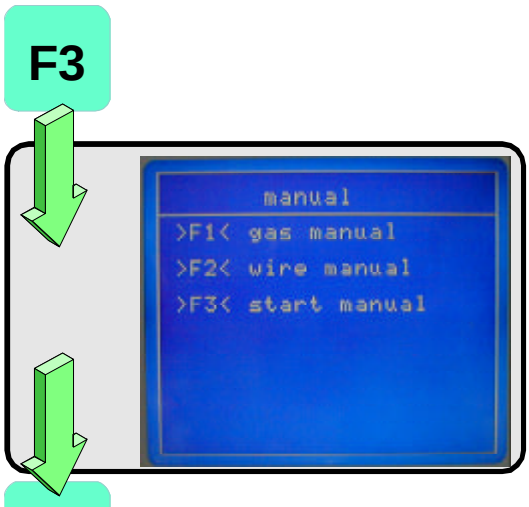
The retract time set is stored with the other values in the weld parameter list.

P9.3 Manual operation

In menu *Manual* the values *Gas* and *Wire* as well as *Arc* can be switched on and off.

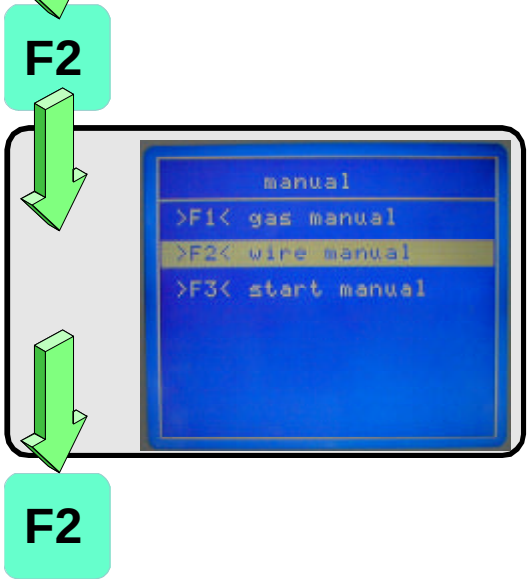
- Press the **F3** key. The menu **Manual** appears on the display.

Example: The torch cable assembly was changed. The wire must now be threaded.



- Press the **F2** key for **Wire manual**.

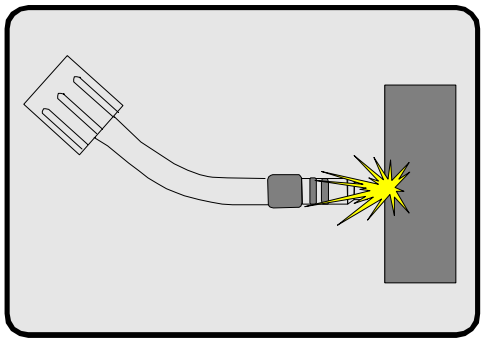
The wire is fed through.



- Press the **F2** key twice to switch off this function.

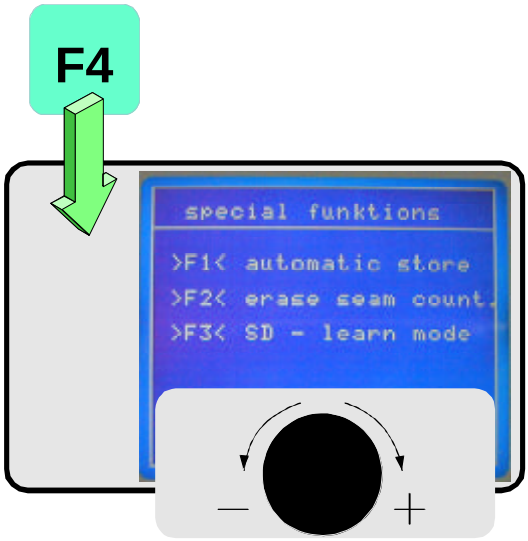
Caution F3

When pressing the F3 key an arc is ignited.
Protect eyes and skin against arc radiation!
Wear protective clothing!



P9.4 Special functions

- Press the **F4** key.



Two special functions are shown:

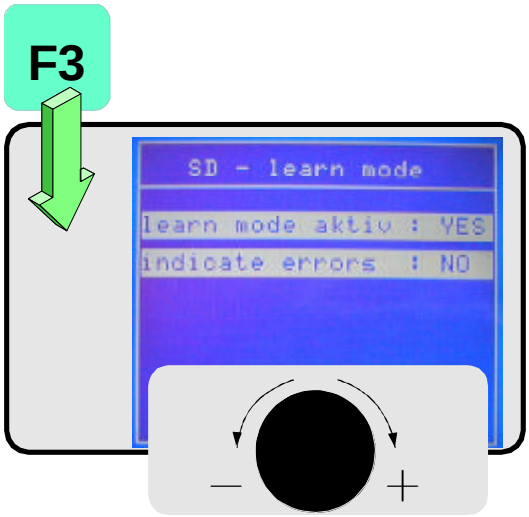
F1 Automatic saving
F2 Delete seam counter

By pressing the function key **F1** and then turning the handwheel the function **Automatic saving** is switched on (YES) or off (NO).

Notes: After the welding machine is switched off, the value **Automatic store** is set to ***NO***.

When pressing the function key **F2**, the **Seam counter** is reset to 1. The measured values of the next weld seam are given the number 1.

- Press the **F3** fuction key and turn the hand-wheel. You can now switch on (Yes) or off (No) the **SD-learn mode** and error message.



The SD learn mode enduces that the set value is automatically accepted when the weld parameter list is changed. The SD - learn mode is used for automatic welding.

P9.5 Weld data monitoring (QUINTO *Profi* SD)

Weld data monitoring has five analogue monitoring channels:

- **Wire drive**
- **Weld current**
- **Weld voltage**
- **Gas flow**
- **Reserve channel**

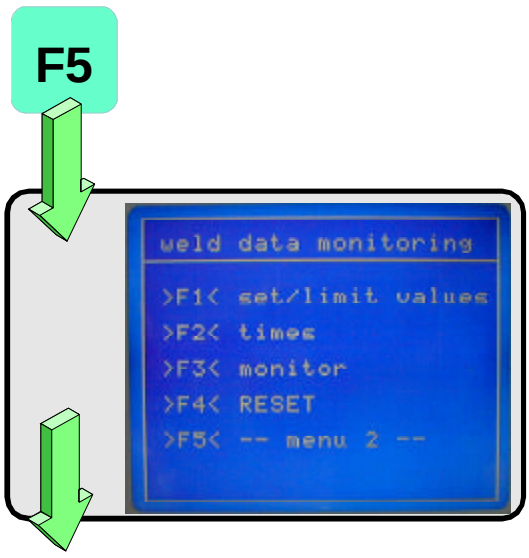
The reserve channel is used to connect an external tachometer (turntable, linear track)
The weld data monitoring settings (SD) are saved together with the values in the weld parameter lists. A separate SD setting is programmed for each weld arameter list.
SD can be used with the following weld processes:

- **MAG Normal**
- **MAG Pulse U/I**
- **MAG Pulse I/I**

Programming:

- Press the **F5** key. **Menu 1** of **SD** is shown on the display.

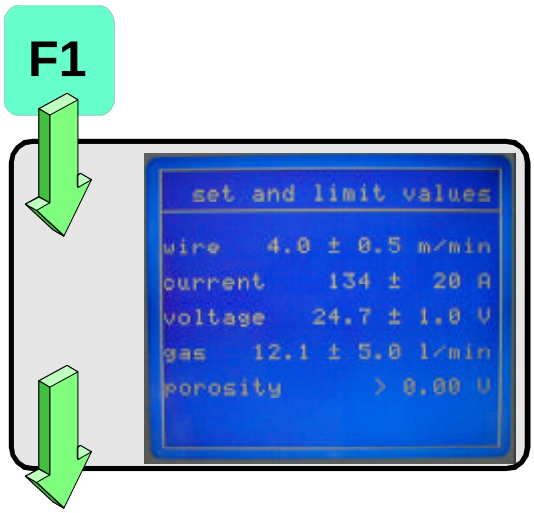
  The values shown on the display are accessed with the functio keys.



- Press the **F1** key to enter the **Set/limit values**.

  The values are selected with the function keys:

  F1 = Wire drive
  F2 = Weld current
  F3 = Weld voltage
  F4 = Gas flow
  F5 = Reserve channel



- In the example **F3** is selected for **Weld voltage**.

  By turning the handwheel the set value for the weld voltage is programmed.

- Press the **F3** key twice to enter the **Limit value**.

  The limit value is the value which defines the maximum **Upper** and **Lower** variations.

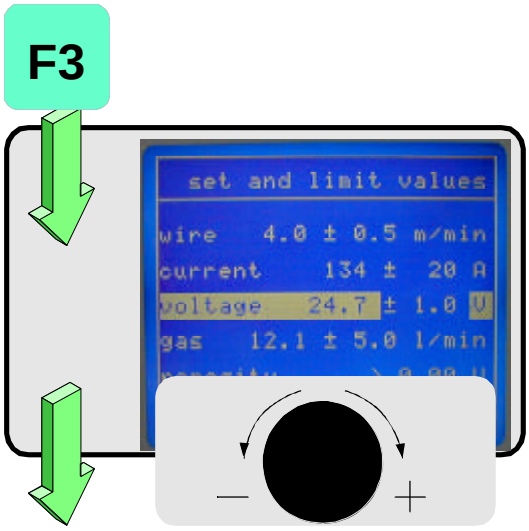
  The example shows a set value of **24,7 Volt** for the weld voltage.

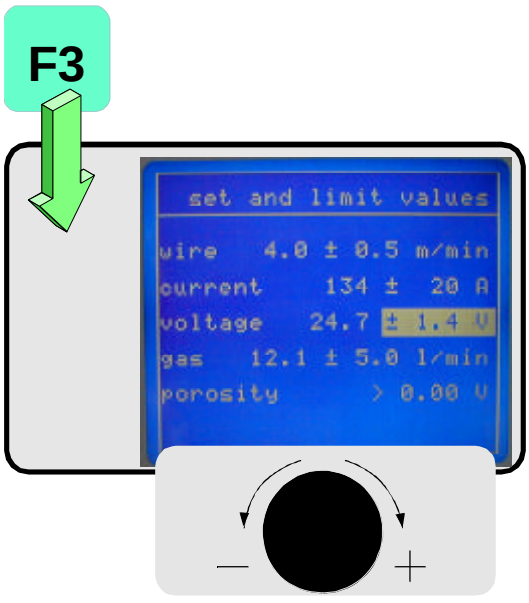
  The limit value is set to **+/- 1.4 Volt**.

  Consequently, the voltage can range between

  23.3 and **26.1 Volt**

  before an error message is given.

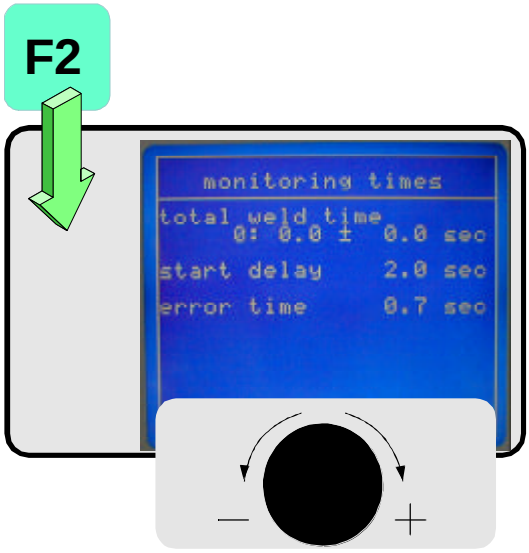




Please proceed in the same way to program the other values.

Another monitoring value is the weld time.

- Press the **F2** key to program the **Monitoring times**.
  The values are selected with the function keys and are programmed by turning the handwheel.

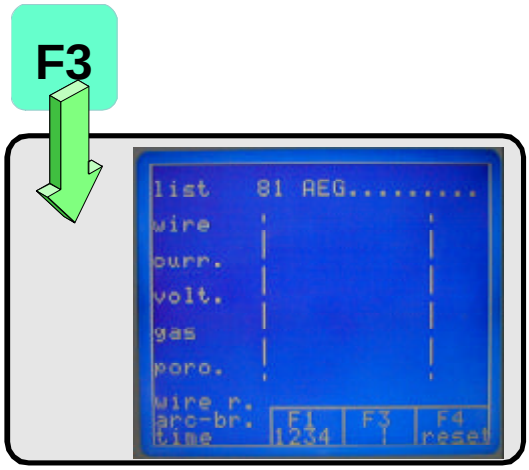


Total weld time: This monitors the weld seam length.

Start delay: The time entered is the time, during which SD is switched off for arc ignition.

Error time: The error time indicates how long an error must exist until SD gives an error message.

- Press the **F3** key and the **Monitor** appears on the display.



During welding the monitoring values can be observed.
The centre line on the display indicates the set vaue. The left and right lines show the minimum and maximum tolerances. Other operations can be selected with the function keys:

F1 In addition to the highlighted bars of the monitoring channels the the values are shown in figures.

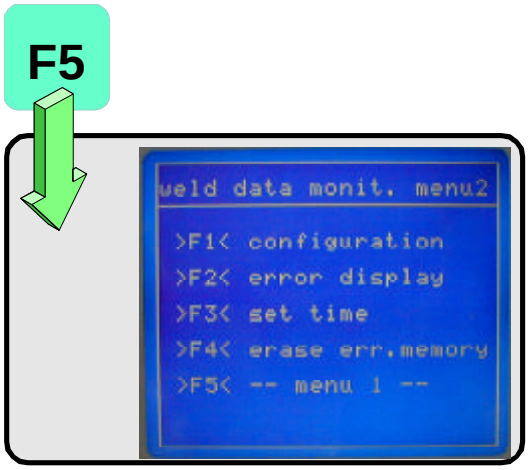
F3 When this key is presssed, the current values are taken as the set values for the SD.

F4 Reset an error message.

All analogue channels can be checked on the monitor. For each channel a highlighted bar is shown, which indicates the monitoring value during welding.

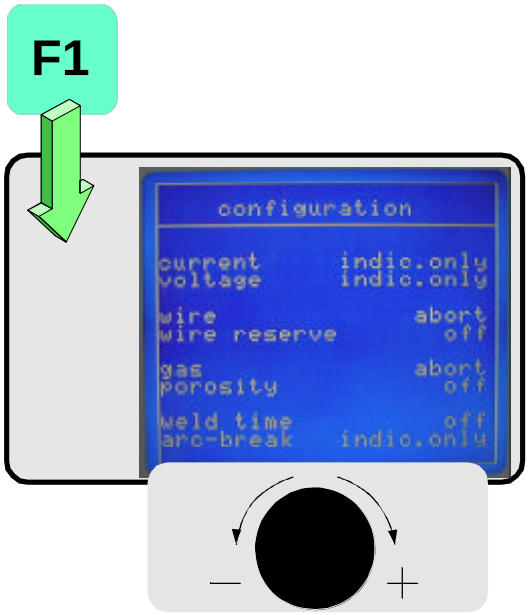
- Press the **F4** key and the error is acknowledged.

- By pressing the **F5** key the **Weld data monitoring menu 2** is accessed.



F1 Configuration
F2 Error display
F3 Set time
F4 Delete error memory
F5 Back to menu 1

- Press the **F1** key to call up the **Configuration menu**.

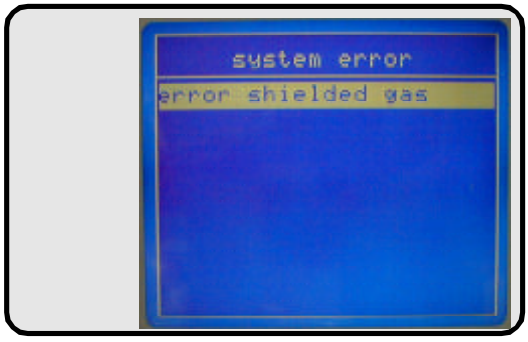


In this menu it is determined individually for all monitoring values how the welding machine should react to an error.

You can choose between:

1. **Off**
2. **Indication only**
3. **Abort**

If **Off** is selected, the monitoring function is **switched off**. If **Indication only** was selected, the arc is not switched off.
An **Entry** is made in the **Error memory**, a **Message** is shown on the display and the output **Collective fault** (X7 Pin 39) is set.



If **Abort** is selected, the welding machine switches the arc off, the error is entered in the **Error memory**, a **Message** appears on the display and the outputs Collective fault (X7 Pin 39) and SD Abort (X7 Pin 30) are set.

The monitoring values are selected with the function keys:

F1 Weld current and Weld voltage
F2 Wire drive and wire reserve
F3 Gas and reserve channel
F4 Weld time and arc-break

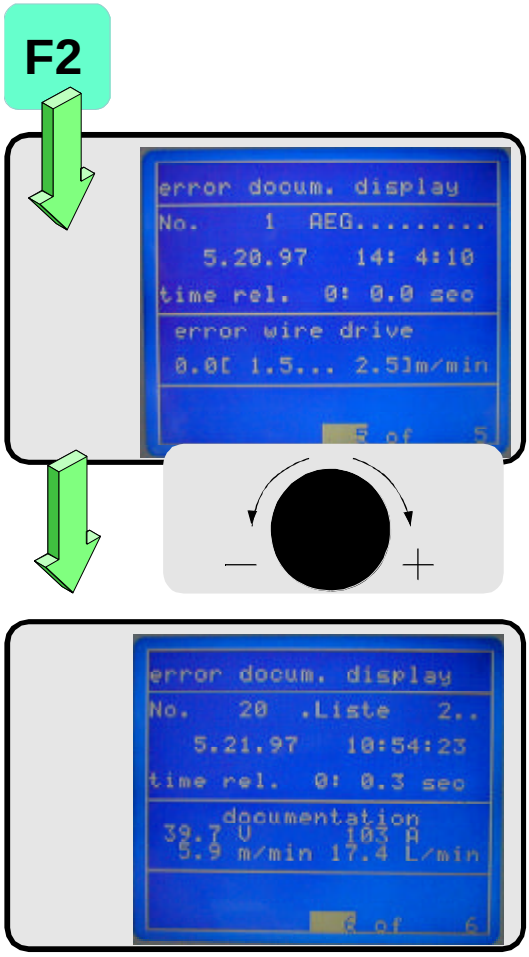
- Press the **F2** key.
  Error display is called up. By turning the handwheel you can scroll to the previous or next display.
  The following data is shown:

  Seam counter and **Weld parameter list**

  Date and **Time** of the error.

  Time between arc ignition and error occurence.

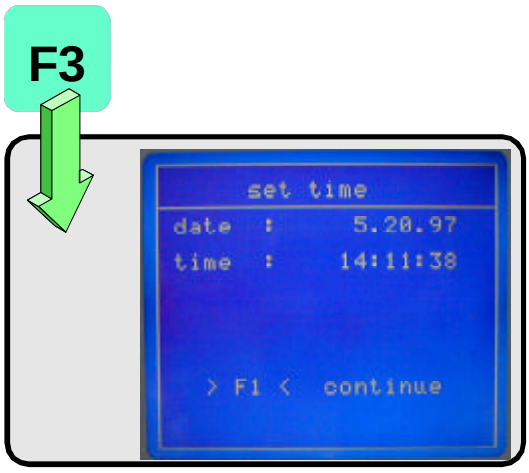
  Monitoring value where the error occured with **Real** and **Set value**.



Documentation of weld seams **without** error is also possible. The documentation mst be released in the Service menu.

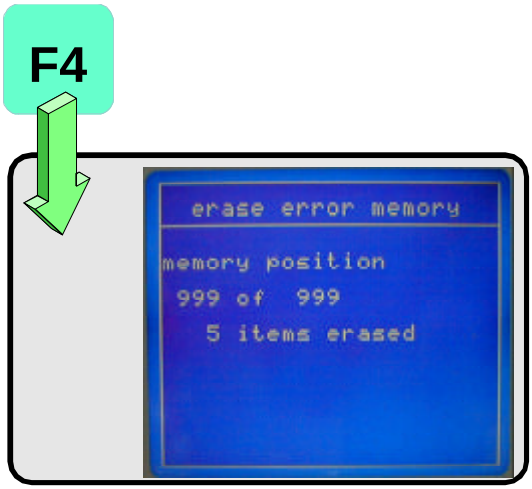
On the right hand side you can see the the documentation of a seam **without** error.

- Press the **F3** key.
  Enter **Date and time**



- If the **F4** key is pressed, the complete **error and documentation memory is deleted.**

  The deletion process is acknowledged on the display and the number of items deleted is shown.



P10 Peripheral control

The **QUINTO *Profi*** provides a digital and analogue output for easy linkage to a peripheral equipment.

With the **digital output** a drive motor (turntable or linear track) can be controlled.

With the **analogue output** the speed of the external drive motor is controlled.

Programming:

- Press the key **Peripheral start**.

  You can now select the following:

  - with weld start
  - after ignition
  - after delay

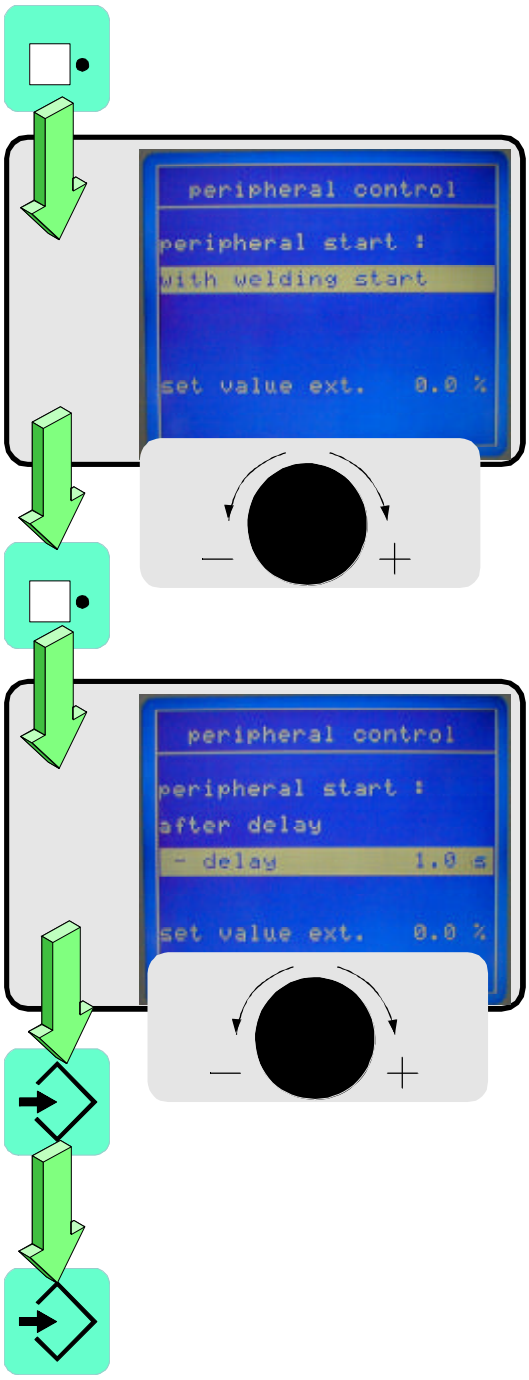
Select by turning the handwhee. If **after delay** is adjusted, the delay time must also be entered.

- Press the key **Peripheral start** one again (twice).

  Turn the handwheel to adjust the delay.

  Delay time: **0 to 10 seconds**

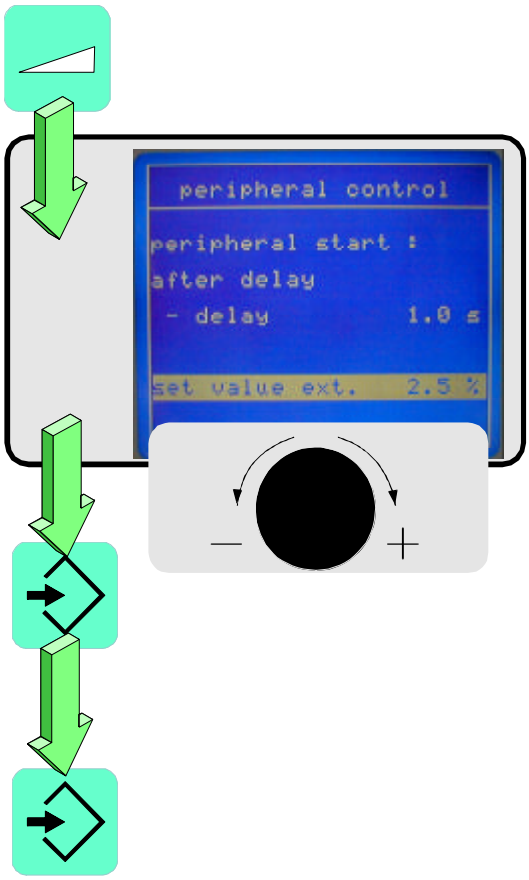
- Press the key Storage twice to store the adjusted size or press the key Set value ext.



- Press the key **Set value ext**.

By turning the handwheel the external drive motor speed can be set.

100% line voltage correspond to
10 V output voltage



- Save the value entered by actuating the **Save** key.

P11 Service menu

In the **Service menu** basic settings are made which are applicable for all weld parameter lists. The service menu is divided into four sub menus, which can be accessed by the relevant passwords:

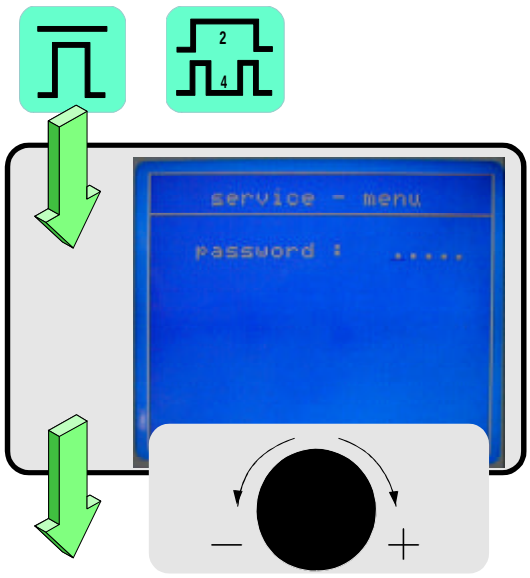
-	**Customer service**	Password:	**KUNDE (CUSTOMER)**
-	**Customer service 2**	Password:	**KUND2**
-	**Control**	Password:	**CONTR**
-	**Service**	Password:	**SERVI**
-	**Configuration**	Password:	**QKONF**
-	**Password**	Password:	**PASSW**

Information on the application and operation of the Service menu is given below. To quit the Service menu, press the **Procedure** key.

P11.1 Calling up the Service menu

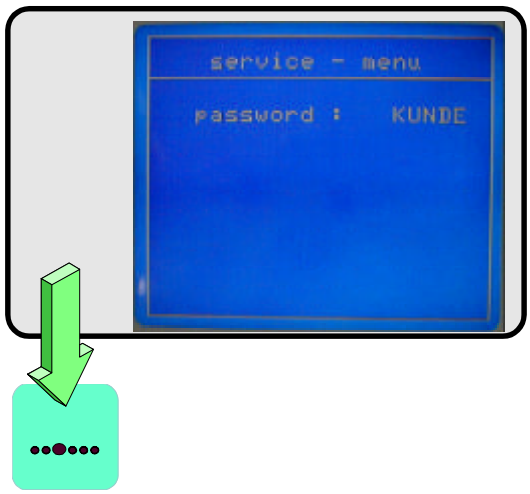
- Press the key **Procedure** and **Operational mode** simultaneously for 5 seconds.

  Enter the password by turning the handwheel and the **Cursor position** key. When the last letter has been entered, press the **Cursor position** key to call up the menu.



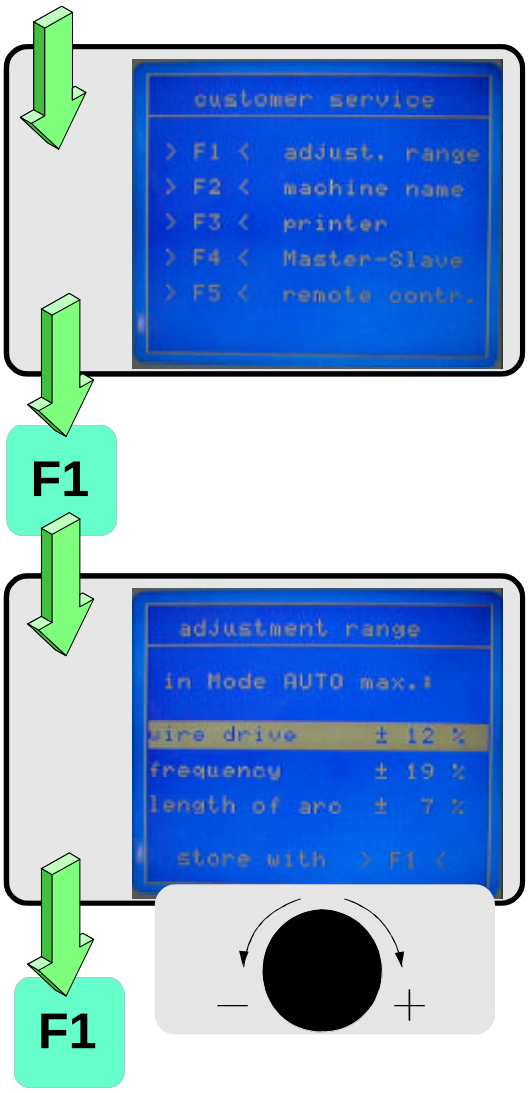
P11.2 Customer service

You have entered the password **KUNDE (CUSTOMER)**.



Press the **Cursor position** key.

You have called up the sub menu
Customer service.
Select the required function.



- Press the **F1** key.

In this menu you determine by which percentage the values

wire drive,

Frequency/Voltage,

Length of arc,

can be changed in AUTOmati operation.

Turn the handwheel to select the value.
By pressing the F1 key the next value is entered and/or saved.
You then return to the menu customer service.

.

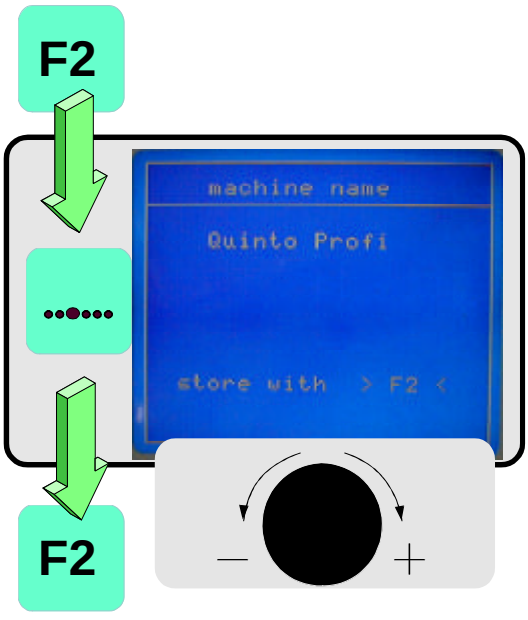
Menu CUSTOMER SERVICE

- Press the **F2** key.

Enter a name by turning the handwheel and the **Cursor position** key.

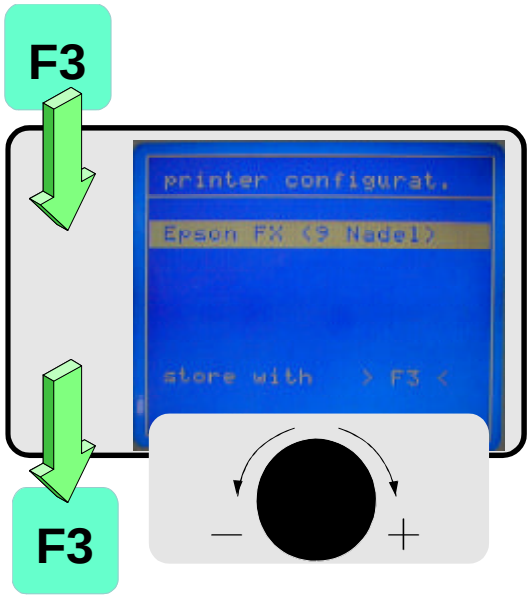
This name is saved by pressing the **F2** key.

This machine name appears in the basic mask of the display and on each print out. This simplifies the allocation of print outs to the welding machine.



Menu CUSTOMER SERVICE

- Press the **F3** key. The menu **printer configuration** is called up.



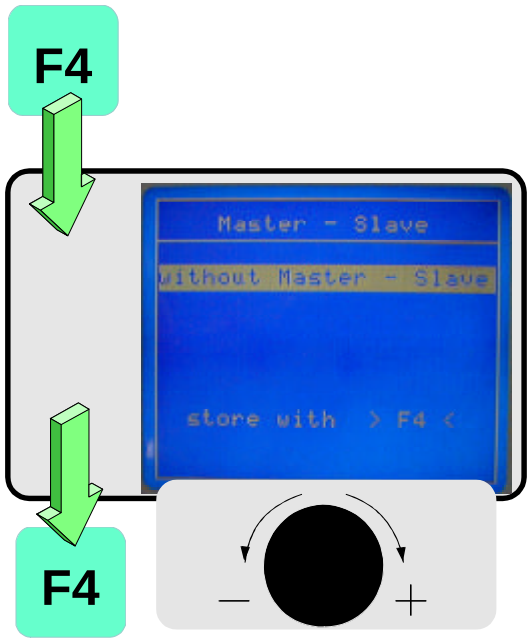
You can select the following printer drivers:

EPSON LQ	(24 dot)
IBM Proprinter	(24 dot)
OKI Mikroline	(9 dot)
EPSON FX	(9 dot)

Select the printer driver by turning the handwheel. Press the **F3** key to save the setting.

Menu CUSTOMER SERVICE

- Press the **F4** key to call up the **Master - Slave** menu.



Turn the handwheel to select the following:
- without Master - Slave
- Master-synchrone
- Slave-mode
- Master-alternate

The function Master - Slave enables the pulse cycle of two or more Quinto welding machines to be synchronized.

The welding machine operates with its own pulse cycle if **Without Master - Slave** has been set.

The welding machine gives the pulse cycle for the other welding machines if **Master** was set.
If **Slave** is selected, the pulse cycle is specified by the welding machine which has been set as Master.
If Master-Alternate has been selected, the pulse cycle of the two power sources is alternatively active.

Press the **F4** key to save the setting.

Note! **The appropriate hardware equipment is required for Master - Slave operation.**

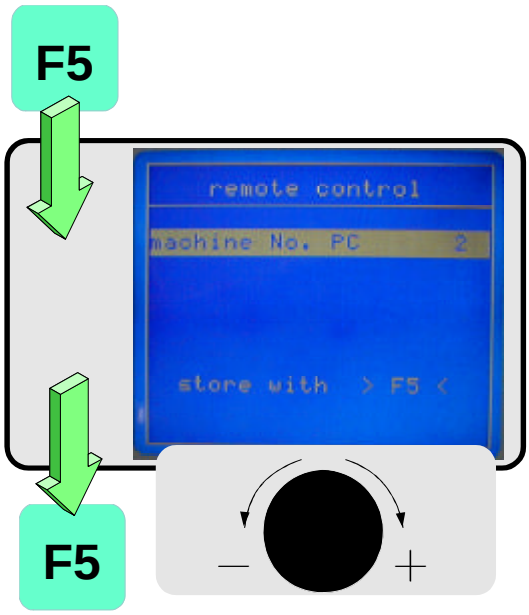
Menu CUSTOMER SERVICE

- Press the **F5** key and the menu **Remote control** is called up.

  If the welding machine is connected to a PC by serial interface, a machine number must be entered.

  Turn the handwheel to select a number. Please ensure that no other welding machine has the same number.

  Press the **F5** key to save the settings.



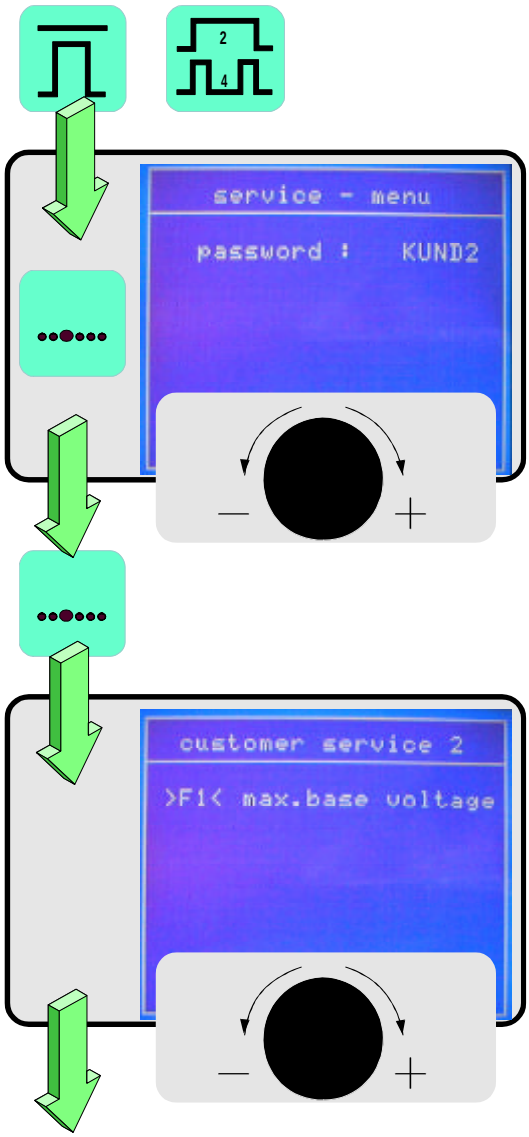
P11.3 Customer service 2

- The service menu has been activated; enter the password **KUND2**.

- Press the key **Cursor-Position.**

  The menu Customer service 2 has one function:

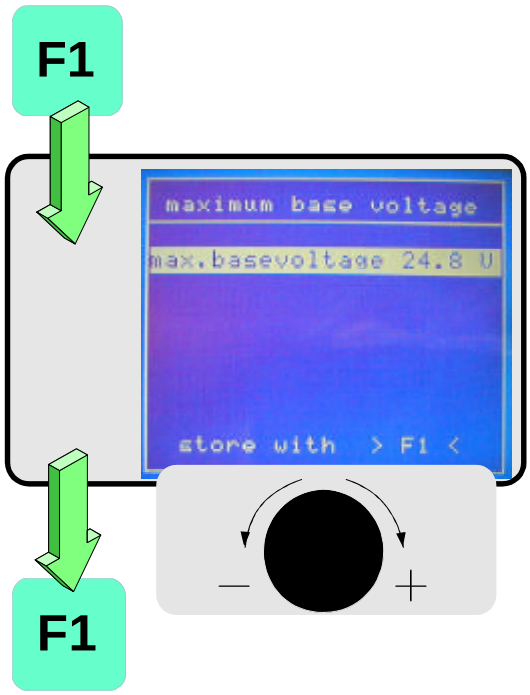
  Maximum base voltage



- Press the **F1** key.

Turn the handwheel until the required limit value for the base voltage has been set.

Save the settings by pressing the **F1 key**.



P11.4 Control

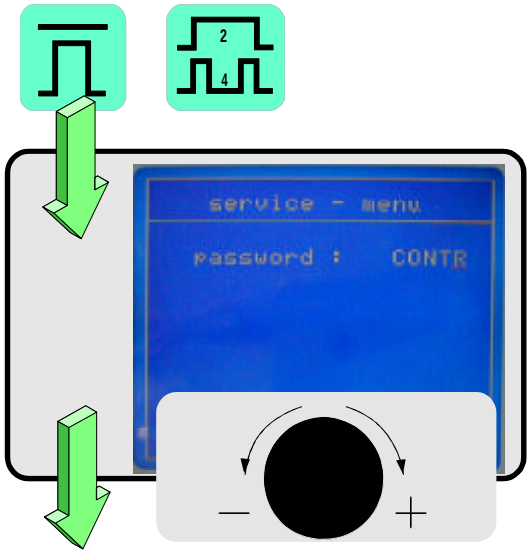
Depending on the welding machine version, different masks are displayed.
The following versions are available:

Quinto *Profi*
Quinto *Profi* SD

SD stands for weld data monitoring.
The welding machine without weld data monitoring is described first.

Menu Control Quinto *Profi*

- You have called up the service menu. Now enter the password **CONTR**.



In the monitoring menu, two further options are shown:

Selection	Switching on the monitoring values.
Interruption (Abort)	Define which error should abort the welding.

- Press the **F1 key** to call the menu **Selection**.

The folllowing can be monitored:

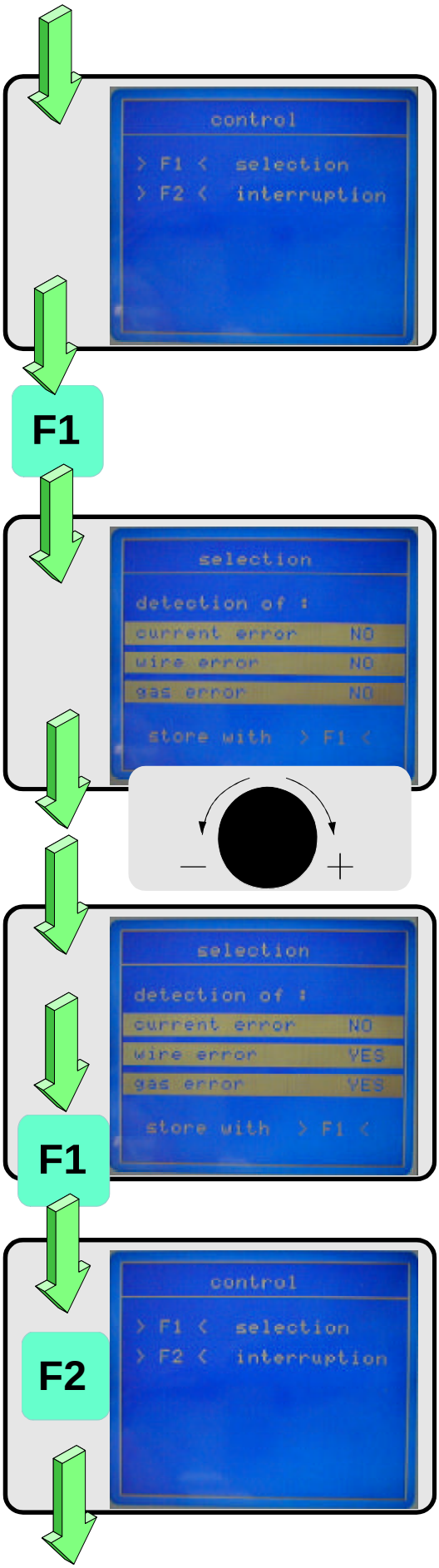
- **Current error (fault)**
- **Wire error (fault)**
- **Gas error (fault)**

Turn the handwheel until the required values are selected or canceled.

- Press the **F1** key to save the setting.

You now return to the menu monitoring.

- Press the **F2** key and the menu **Interruption** (Abort) is called up.



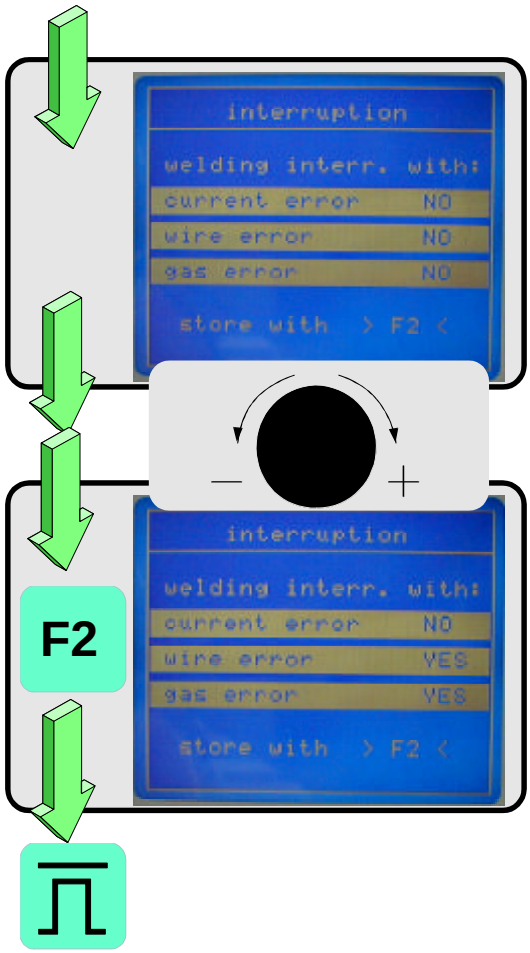
You can determine the values which should interrupt welding if an error occurs:

- **Current error (fault)**
- **Wire error (fault)**
- **Gas error (fault)**

Turn the handwheel until the required value has been set or cancelled.

- Press the **F2** key to save the setting.

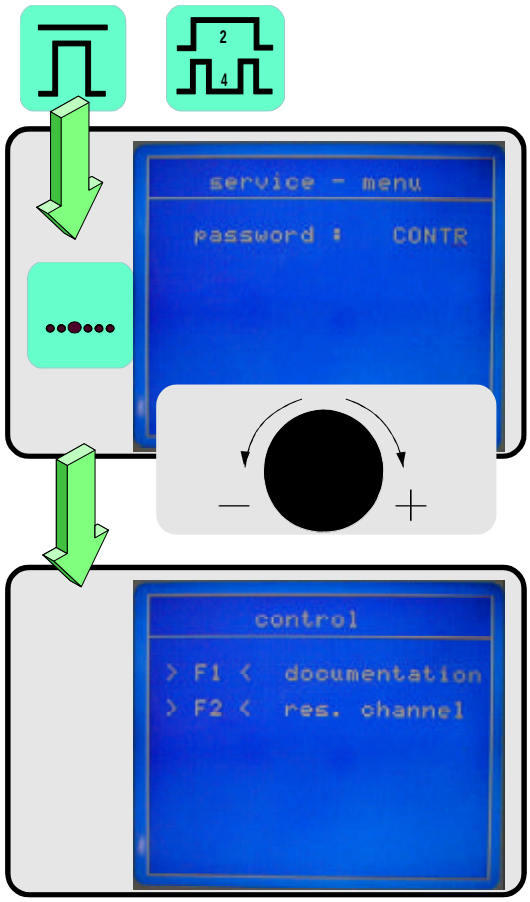
You now return to the menu monitoring. Press the menu **procedure** to complete the service menu.



Menu Control Quinto *Profi* SD

- You have called up the service menu. Enter the password **CONTR**.

The Control menu has two setting options, which can be called up via the function key.



- Press the **F1** key to call up the menu **Documentation**.

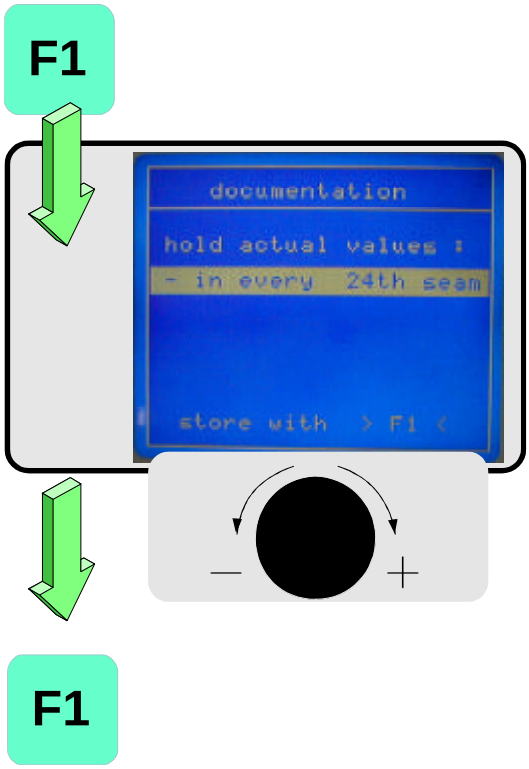
  If you require good seams to be documented as well as faulty weld seams, this can be set up in this menu.

  Turn the handwheel to select:

  No no documentation of good weld seams.

  1-100 Saving at set intervals.

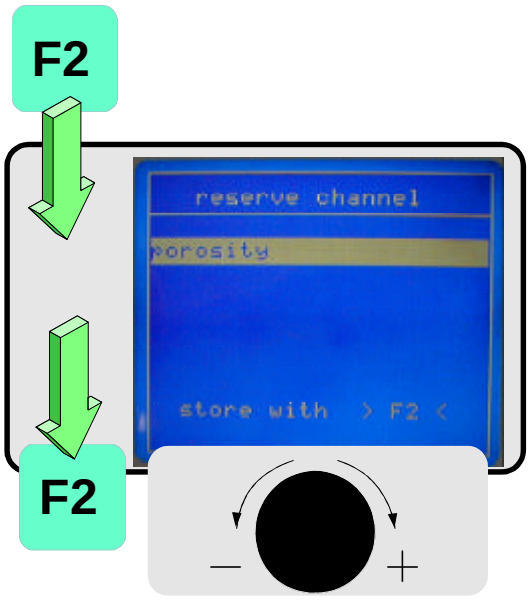
- Press the **F1** key. The setting is saved and you return to the menu **Control**.



- Press the **F2** key. The menu **Reserve channel** is active.

  The reserve channel is free for you to use, i.e. it can be used as analogue control input and you can use it:
  - Reserve channel
  - Porosity control
  - Motor current (Pheripheral equipment)

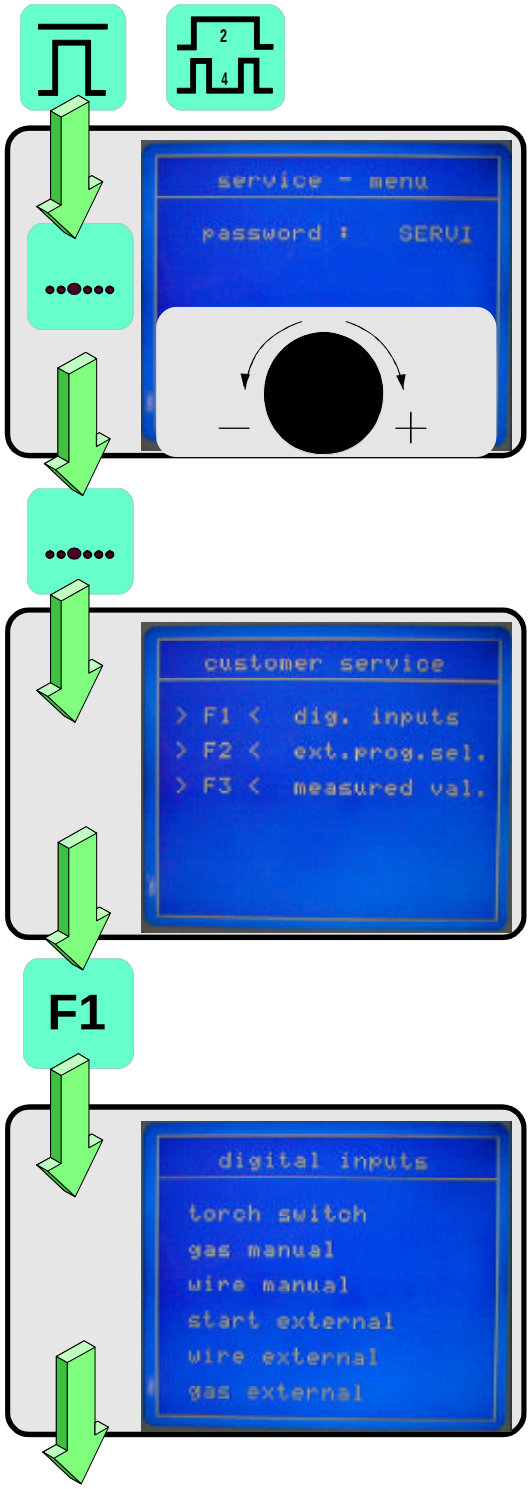
- Select by turning the handwheel and press the F2 key. You then return to the menu **Control** and the setting is saved.



P11.5 Service

- You called up the service menu.
  Enter the password **SERVI**.

  The menu **Customer service** is opened.



  In the menu Customer service the following functions are possible:

F1	**Check the inputs**
F2	**Check the external program selection**
F3	**Check the analogue inputs**

- Actuate the **F1** key. The **digital inputs** menu is switched on.

  You can test the following inputs:

  Torch trigger
  Gas manual key on wire drive unit
  Wire manual key on the wire drive unit
  Start external input (i.e. from the robot)
  Wire external input (i.e. from the robot)
  Gas external input (i.e. from the robot)

  If the input signal is given, the relevant text is highlighted in the display.
  In the example shown
  the **torch trigger** has been pressed.

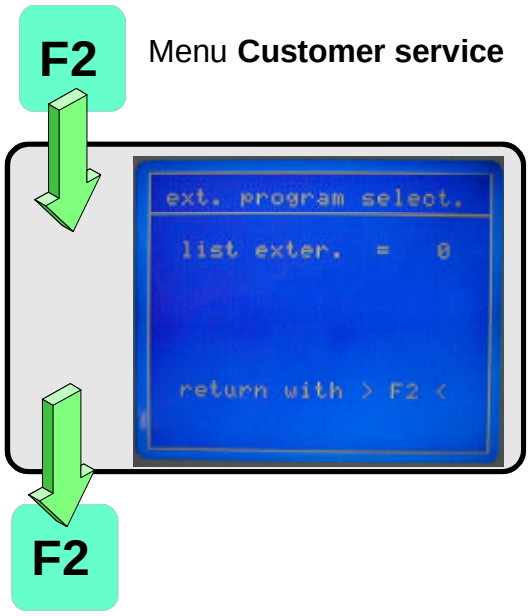
.

- Actuate the **F1** key to finish the menu Digital inputs.

- Press **F2** key to open the menu **external program selection**.
  The following are shown:

List external	Shows the weld parameter list, which is to be switched on externally (i.e. by robot).
*Next list	Shows whether the next (following) parameter list is to be switched on (highlighted).
*Reset list	Back to the initial weld parameter list (highlighted).

***** The display *Folge - Liste (next list)* and *Reset - Liste* is only shown with 6-Bit-program selection!



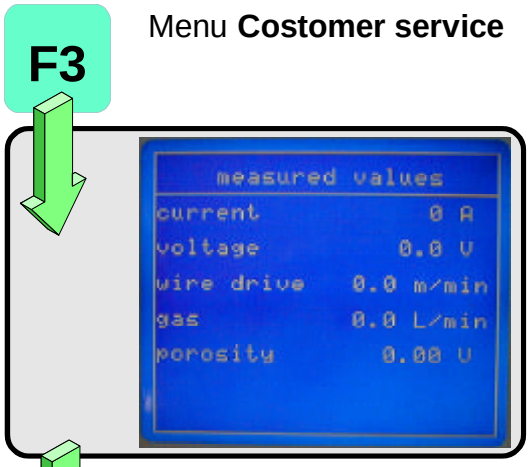
- Finish the test by pressing the **F2** key. You now return to the **Customer service** menu.

- Press the **F3** key to call up the menu **Measured values**.

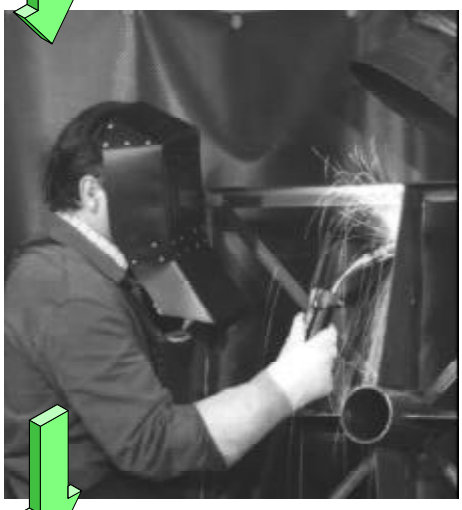
  The analogue inputs for

  - **Welding current**
  - **Welding voltage**
  - **Wire drive**
  - **Gas flow**
  - **Porosity or Reserve**

are displayed. In this menu the current values of the welding machine are shown.



You can start welding.



Caution

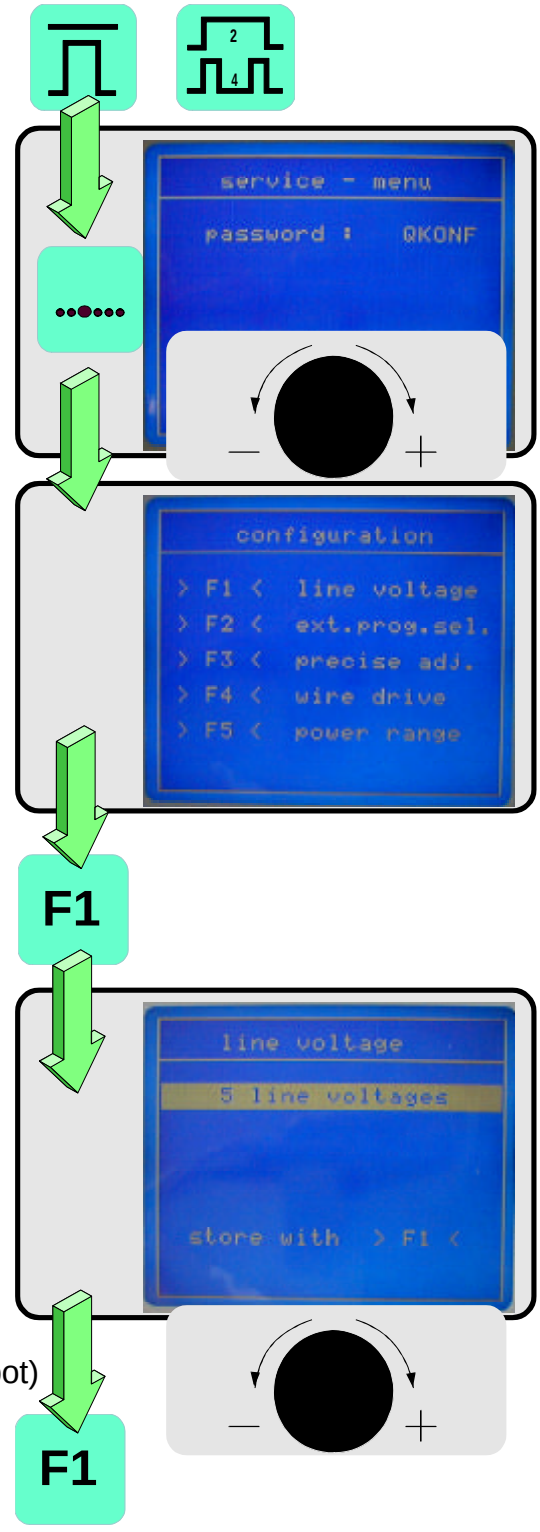
Protect eyes and skin against arc radiation!
Wear protective clothing!

P11.6 Configuration

- You have called up the service menu.
  Enter the password **QKONF**.

The **Configuration** menu has five options, which are called up the function keys:

F1 Line voltages (from V1.70 SD onwards)
F2 External program selection
F3 Precise adjustment
F4 Wire drive
F5 Power range



- Press the **F1** key to call up the menu **Line voltages**.

Turn the handwheel to choose between:

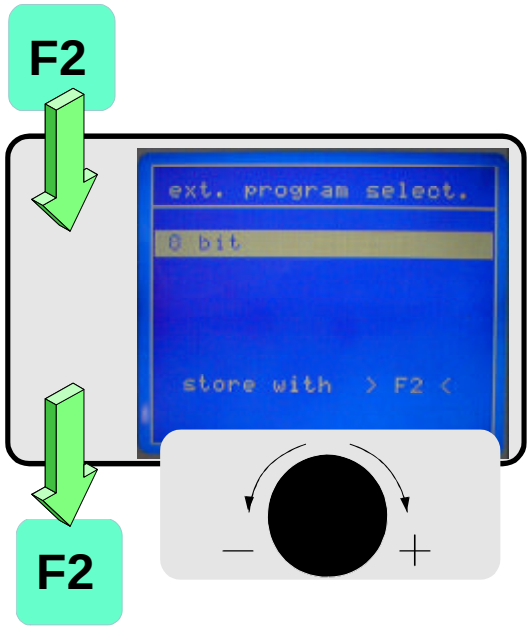
- **without line voltage** (manual welding)
- **1 line voltage** (from V1.70 onwards)
- **2 line voltages** (e.g. from the robot)
- **3 line voltages** (e.g. from the robot)
- **5 line voltages** (e.g. from the robot)
- **Mini-Mag** (remote control)
- **analogue list selection** (e.g. from the robot)

- After carrying out the settings, press the **F1** key to quit the menu **Line voltages**.

Please note that if you have selected Line voltages, Mini-Mag, not all the values on the welding machine can be set!

Menu **Configuration**

- Start the menu **external Program selection** by pressing the **F2** key.



There are two options:

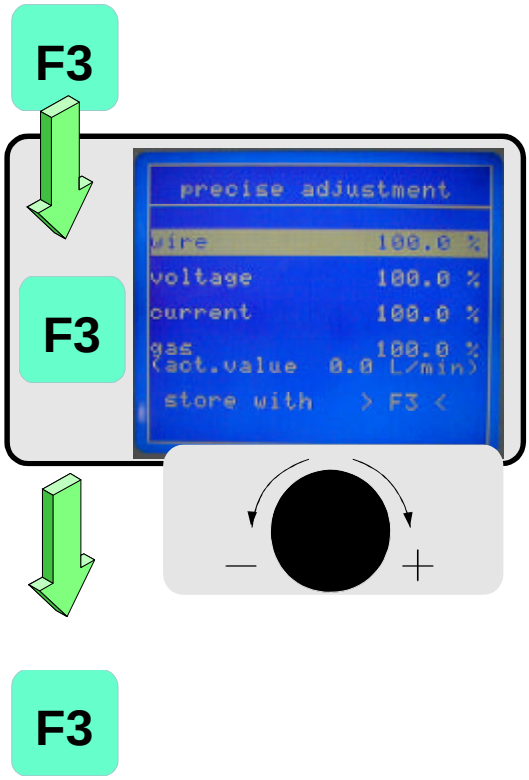
- **6 bit + Sequence and Reset**
- **8 bit**
- **analog list selection** (V1.60 and SD)

Turn the handwheel for the required setting.

- Press the **F2** key to save the setting and to quit the menu.

Menu **Configuration**

- Press the **F3** key to access the menu **Precise adjustment**.



In this menu it is possible to adjust the control system of the sizes

- **Wire drive**
- **Weld voltage**
- **Weld current**

within a range of +/- 5%.
The value

- Gas flow

can be adjusted in another range.
Change the value by turning the handwheel.
Use the **F3** key to get to the next value etc.
When all values have been set, save and quit the menu **Precise adjustment**.

The adjustment affects all weld parameter lists and the set limit values for weld data control (SD).

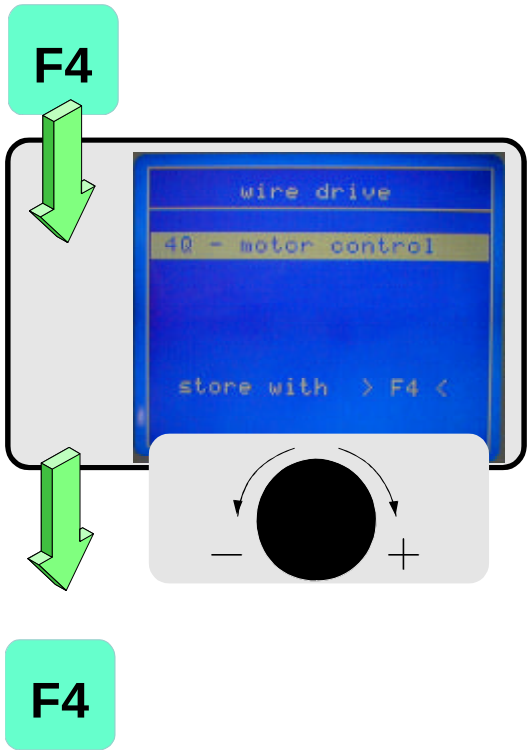
Menu **Configuration**

- Press the **F4** key to access the menu **Wire drive**.

  The wire drive regulators to be used are set up here.
  The following regulator systems are available:

  - **4 Quadrant regulator**
  - **4 Quadrant regulator with Duo - Drive**
  - **1 Quadrant regulator** (not Quinto Profi)

  Set the regulator and save by pressing the **F4** key.



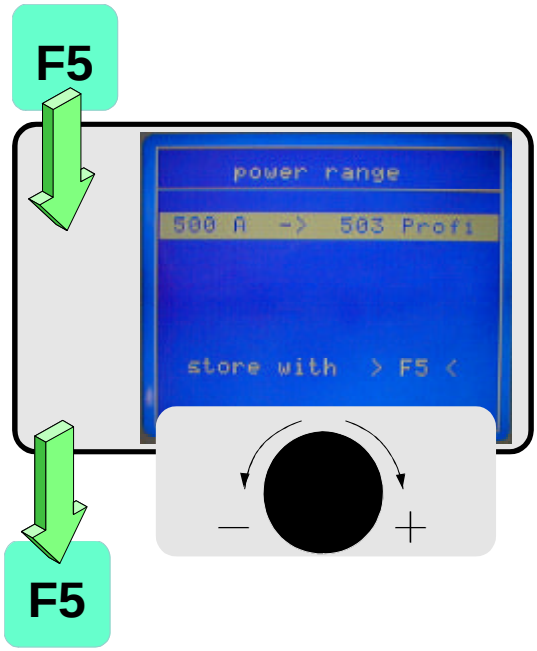
Menu **Configuration**

- Press the F5 key to call up the menu **Power range.**

  Two power ranges are available:

  - 350 A 353 Profi
  - 503 A 503 Profi

  Turn the handwheel to set the power range for the existing welding machine.



- Finish and save the **Power range** setting by pressing the **F5** key.

The power range only needs to be set if the microprocessor component group has been replaced.

11.7 Password

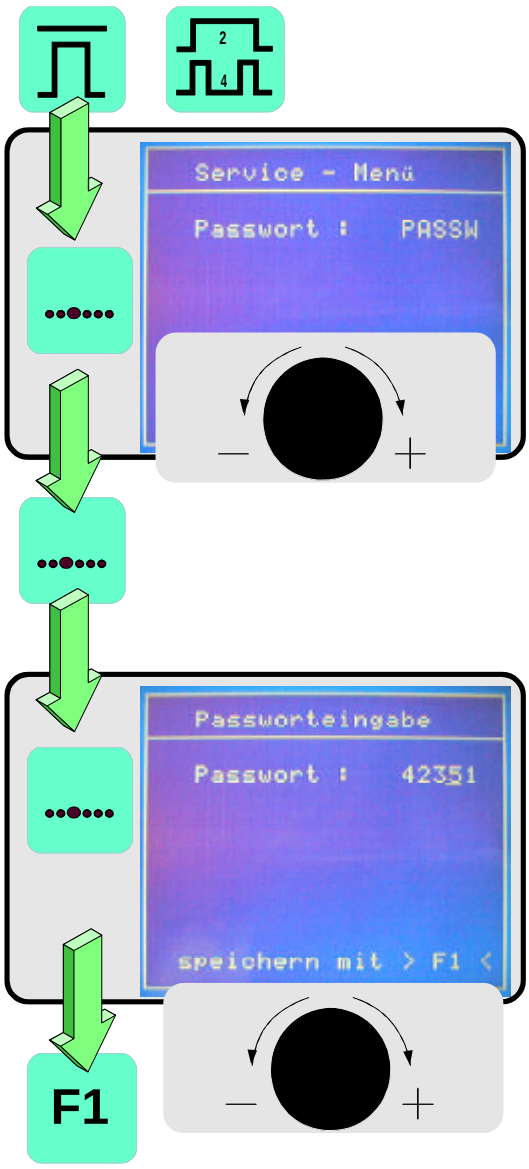
The values input are protected by a password. These values can only be modified after entering a password. The password has to be entered if:

- the power source is switched on and the key-operated switch is set on position PROGramming
- if the key-operated switch is changed from AUTOmatic position to the position PROGramming.

Use the **F1** to **F5** keys to enter the password. The F1 key corresponds to 1, F2 key corresponds to 2 etc. If you do not require a protection of the programmed value, please enter a .(point) on the first digit when programming.

- Call the Service menu.
- Enter the password **PASSW** by turning the handwheel and pressing the **Cursor-Position** key.
- Confirm the input and press the **Cursor-Position** key.

  Turn the handwhell until the required number appears. Numbers between **1 and 5** as well as a . (point) can be input. Press the **Cursor-Position** key to jump to the next digit.
- Actuate the **F1** key if the input has been finished. The password protection is now switched on or off.



S Faults

Faults are divided into three categories:

- **Problems during operation**
- **System faults**
- **Arc faults**

Attention

Before any work is carried out inside the power source, the mains switch must be switched off and the mains plug disconnected.

After disconnecting the mains plug, wait at least two minutes until the capacitors have reached safe values!

After maintenance and repair work the side parts and cover have to be reassembled.

S1 Problems during operation

Faults which occur when welding can be rectified by qualified personnel or the welder. Location of electrical faults or repairs must only be carried out by experts.

If a fault cannot be rectified by your own service staff, please contact your nearest official **CLOOS representative**.
A list of addresses of Cloos representatives is enclosed (see appendix).

Faults:

- *Welding machine cannot be switched on:*

  1. Check the power lines.
  2. Check the T2 and T3 transformers. Make sure that they are connected according to the correct mains voltage.
  3. Check the fuses in the welding machine.

- *No welding current or very little supplied by machine:*

1. Loose contact or arcing at :
   - weld current connection plus
   - weld current connection minus
   - torch connection (robot)
   - central connection (wire drive unit)
   - earth connection (peripheral equipment)
   - workpiece clamp

2. Fault in the welding machine

Wire drive unit does not work properly:

1. The wire parts (wire drive rollers etc.) fitted are for the wrong wire diameter.

2. The wire is bent

3. The surface is not clean.

4. Counter pressure roller is loose.

5. Wire coil brake is too tight.

6. Tolerance within wire drive set is not correct.

Weld seams are porous:

1. Component severely rusted or contaminated by paint/oil or double plate

2. Distance between welding torch and workpiece is too large.

3. Leaking gas supply

4. Porosity caused by magnetic blowing action of the welding material. As preventive measure always keep welding movement away from the workpiece clamp.

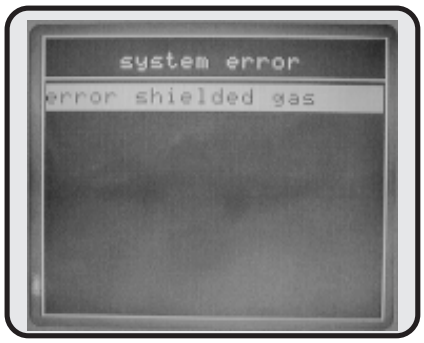
5. Welding torch is held too flat.

6. Gas flow is set too high or too low.

7. Polluted or incorrect gas.

8. Cross wind blows away the shielding gas, i.e. due to open doors or heating fans.

S2 System errors



System errors are directly shown on the welding machine display. In addition to the message on the display, an error message is given to the X7 peripheral socket.
The collective fault signal (X7 Pin 39) changes from 0 V to 24 V and the 'ready for welding' signal (X7 Pin 40) from 24 V on 0 V.

All system faults are described below.

Undervoltage

Welding is impossible if the intermediate circuit voltage (capacitor battery of the cascade) is lower than 35 Volt.

Cause:

- One mains supply phase is missing.
- F6 fuse has failed.
- Short circuit in the cascade means that the intermediate circuit cannot be loaded.

Overvoltage

Welding is impossible if the intermediate circuit voltage exceeds 85 Volt.

Cause:

- Mains voltage is too high.

Overtemperature pump/fan

Water cooling pump and fan are protected by temperature switches in the motor windings. In the case of overload, the corresponding temperature switch opens the monitoring circuit and the weld process is interrupted.

Cause:

- Pump is overloaded by contaminated cooling agent or blocked hoses
- Motor is faulty

Overtemperature transformer / rectifier / cascade

Main transformer, rectifier and transistor cascade are also protected by temperature switches. They are connected in series and initiate the same message on the display.

Causes:

- Permissible duty cycle has been exceeded
- The cooling air inlet and outlet are covered or contaminated.
- The welding machine interior is severely contaminated.
- The ambient temperature is more than 40° Celsius.

Water leakage

The welding machine has a float type switch in the water tank. The **Quinto *Profi* 503** and **SD** welding machines have an additional flow switch in the cooling current return of the welding torch. Both switches are connected in series and initiate the same error message.

Causes:

- The cooling liquid in the tank is below the minimum level.
- The cooling liquid circulation is obstructed (bent hose, impurities in the cooling circuit).

S3 Arc faults

The **Quinto *Profi*** welding machine with **CK 78 D/R wire drive unit** has monitoring sensors for

- Shielding gas
- Welding wire
- Current

These sensors work on a digital basis, i.e. they supply a signal which indicates if wire or gas pressure are available or not. Simple arc monitoring is enabled by these signals and arc acknowledgement (current fault).

A special menu is available (see P11.3 Control) to set which monitoring functions are to be active.

It can be decided how the welding machine should react to a fault.

The ***Peripheral socket X7*** has four digital outputs:

- **Current fault** **Pin 33**
- **Wire quantity** **Pin 34**
- **Gas pressure** **Pin 35**
- **Collective fault** **Pin 39**

The outputs are used to transmit the error messages to an exterrnal control (i.e. robot control).

Option 1:

If in the *Selection* menu *NO* is programmed for the monitoring channel, the relevant message is not shown on the display. The digital output on plug X7 signals the fault and changes from 24 Volt to 0 Volt. The signal for collective fault remains on 0 Volt. You can continue welding.

Option 2:

In the Selection menu *YES* is programmed for the monitoring channel and NO is selected in the *Interruption* menu. In this case an error message appears on the welding machine display, but you can still continue welding. The digital output on plug X7 changes from 24 Volt to 0 Volt and the signal collective fault signal changes from 0 Volt to 24 Volt.

Option 3:

YES was entered in the *Selection* and *Interruption* menu. With this programming, the welding machine acts exactly as described under the 2nd option. However, you cannot continue welding after a fault.
With the external signal

- **Reset error** **X7** **Pin 13**

the fault is reset.

Note! **Arc faults which have been recognized by the weld data monitoring (SD) are explained under *9.5 Weld data monitoring* .**

W Maintenance

W1 Information, intervals

Regular maintenance of the machine is essential for safe and troublefree operation. The necessary maintenance work and repair work must therefore be carried out at regular intervals.
This is in any case required by the safety regulations VBG 4 !

The maintenance of the machine mainly concerns the welding torch. The life of the gas shrouds and current tips, which are subject to wear can be extended considerably if they are sprayed from time to time with torch spray, which allows easier removal of weld spatter or prevents their adhesion altogether.
The liners must be cleaned after welding 50 - 100 kgs wire, depending on wire size. To do this they are pulled out of the outer hose. The outer hose and the liners are blown out with compressed air.

After welding one coil of wire (15 kgs), the current tips should be cleaned with the cleaning drill.

Attention!

Before any work is carried out inside the power source, the machine must be switched off and the mains plug disconnected.

After disconnecting the mains plug, wait at least two minutes until the capacitors have reached safe values !

Daily checks

1. Please check the machine for abnormal vibration, humming noise and smell.

2. Please check the connection bushes, cables, hoses, torch for abnormal heating, insulation faults, leaks and cleanliness!

3. Please check the coolant level in the container. The cover must always be fastened !

4. Please check the wire drive unit. Welding wire abrasion must beremoved by using dry compressed air, which also prevents a premature wear.

   The mechanical drive parts must be cleaned and greased at regular intervals.
   Do not lubricate the drive rolls; this would cause the wire to slip.

Monthly checks

1. Please check the cooling agent for cleanliness.
2. Please check the cooling radiator, item 88, at the rear of the machine, for cleanliness.

Quarterly checks

The water cooling pump is provided with a filter which must be checked and, if necessary, cleaned after 250 working hours. To do this, the welding machine must be switched off and opened and the filteron the pump removed. The filter is located at the bottom of the pump body below a cap nut. It should be cleaned using running water, otherwise the welding torch may be damaged due to overheating !

Half-yearly checks

1. Please check the interior of the machine and the components for dust and dirt
2. Please check the mains cable and welding cable for a firm seat and good contact.
3. Please ensure that the machine is always correctly connected to earth.
4. Please check that the machine cover is correctly assembled and fits tightly.
5. Please check the cooling radiator for bent laminas and, if necessary, realign.

W2 Special instructions

W2.1 Dust and dirt

W2.1.1 The cooling efficiency of the radiator, item 88 at the rear, largely depends on the cleanliness of the laminas. These have to be cleaned at regular intervals. It is recommended that cleaning is carried out by blowing dry, oil-free compressed air through the radiator. This will remove any dust and the radiator will regain its original cooling efficiency.

W2.1.2 Dust and dirt on the main transformer, rectifier, etc. affect the cooling efficiency of the fan. Metal dust on the main transformer may also lead to insulation problems and cause earth or winding short circuits. Depending on the degree of contamination these parts must be vacuum cleaned, .
We advise you not to use compressed air because this would increase the dust penetration into the components!
A vacuum cleaner can also be used to clean the uper wiring area. As this area is sealed, this work is only required at relatively long intervals.

W2.2 Cooling agent, anti-freeze agent, disposal

The coolant must be drained off if it is **contaminated** (it usually becomes a brownish colour). It must be **disposed of**.

- It must not enter the main drainage system. -

The complete cooling system must then be rinsed with fresh tap water, re- filling, circulation with the aid of a pump, draining off as far as possible; if necessary use compressed air. The new cooling agent is refilled as described under III. in the operating instruction manual, paragraph 8: Cooling agent.

Only use

CLOOS cooing agent - Part No. 000 01 01 31

which contains

anti-freeze up to **-20^{0}C**

and also **protects against corrosion**.

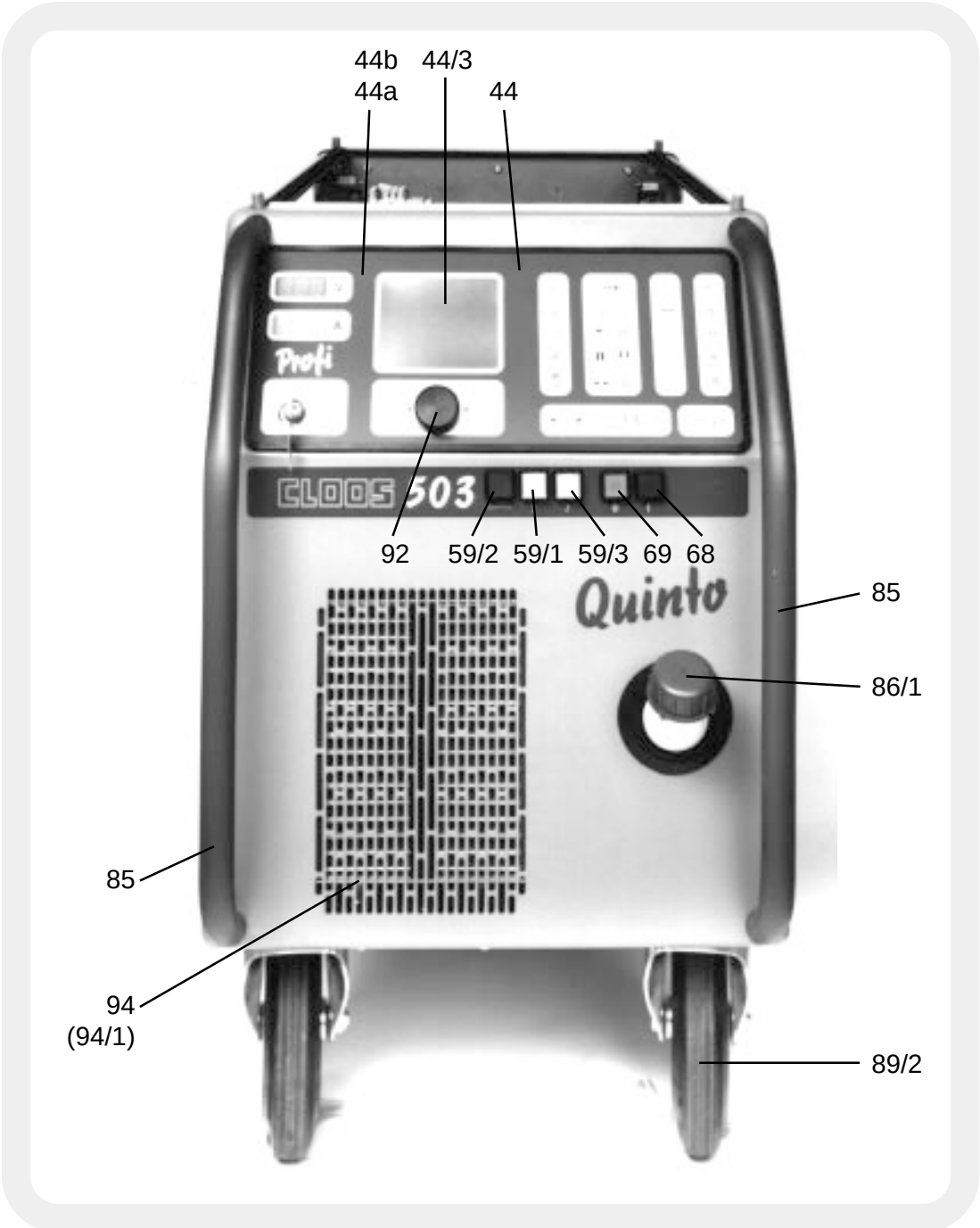
Clean cooling agent prevents erosion of the torch body and other parts of the cooling water system due to electrolytic effect **!**

Ersatzteillisten

Spare parts lists

Listes des pièces de rechange

VII. Abbildung Schweißgerät QUINTO Profi / Illustration: Welding machine QUINTO Profi / Illustration: Poste de soudage QUINTO Profi



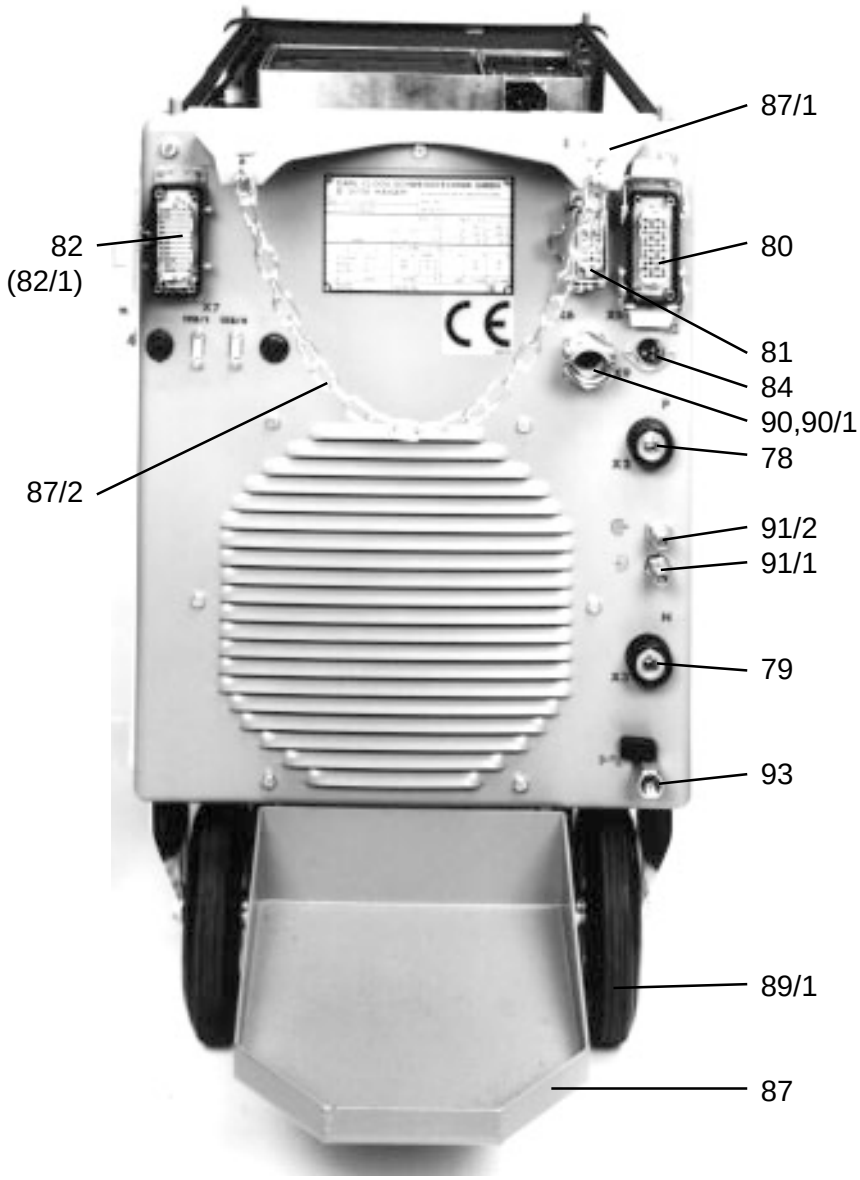


Abbildung Schweißgerät QUINTO Profi /
Illustration: Welding machine QUINTO Profi /
Illustration: Poste de soudage QUINTO Profi

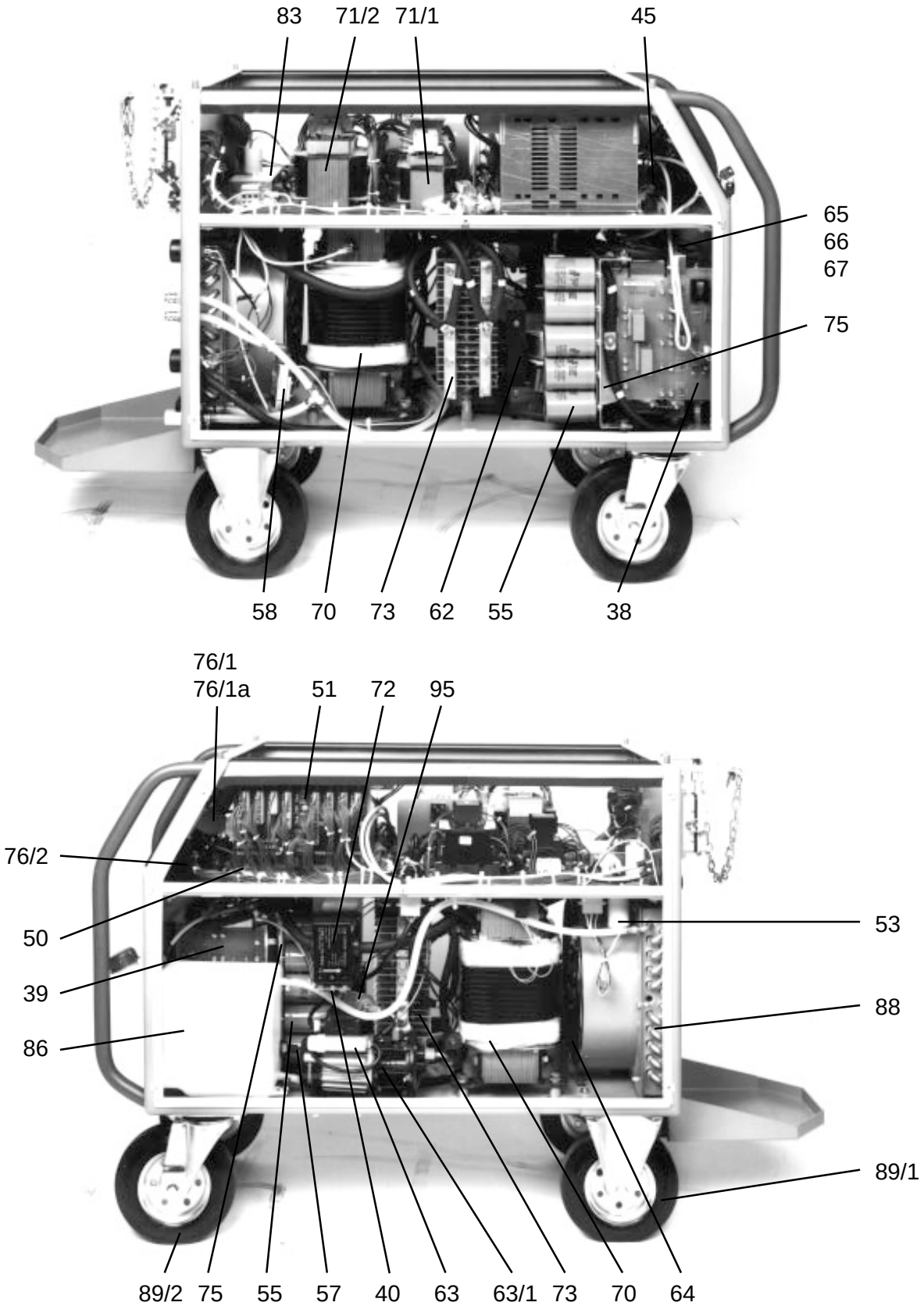


Abbildung Schweißgerät QUINTO Profi /
Illustration: Welding machine QUINTO Profi /
Illustration: Poste de soudage QUINTO Profi

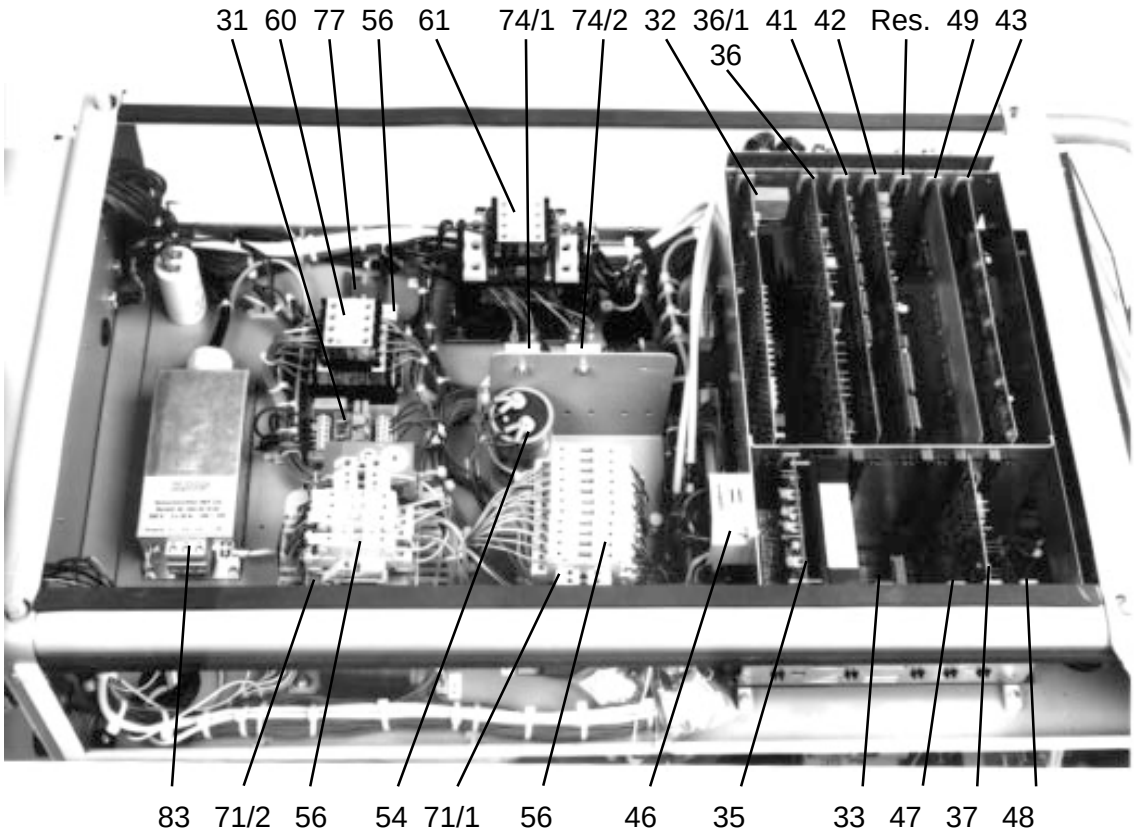
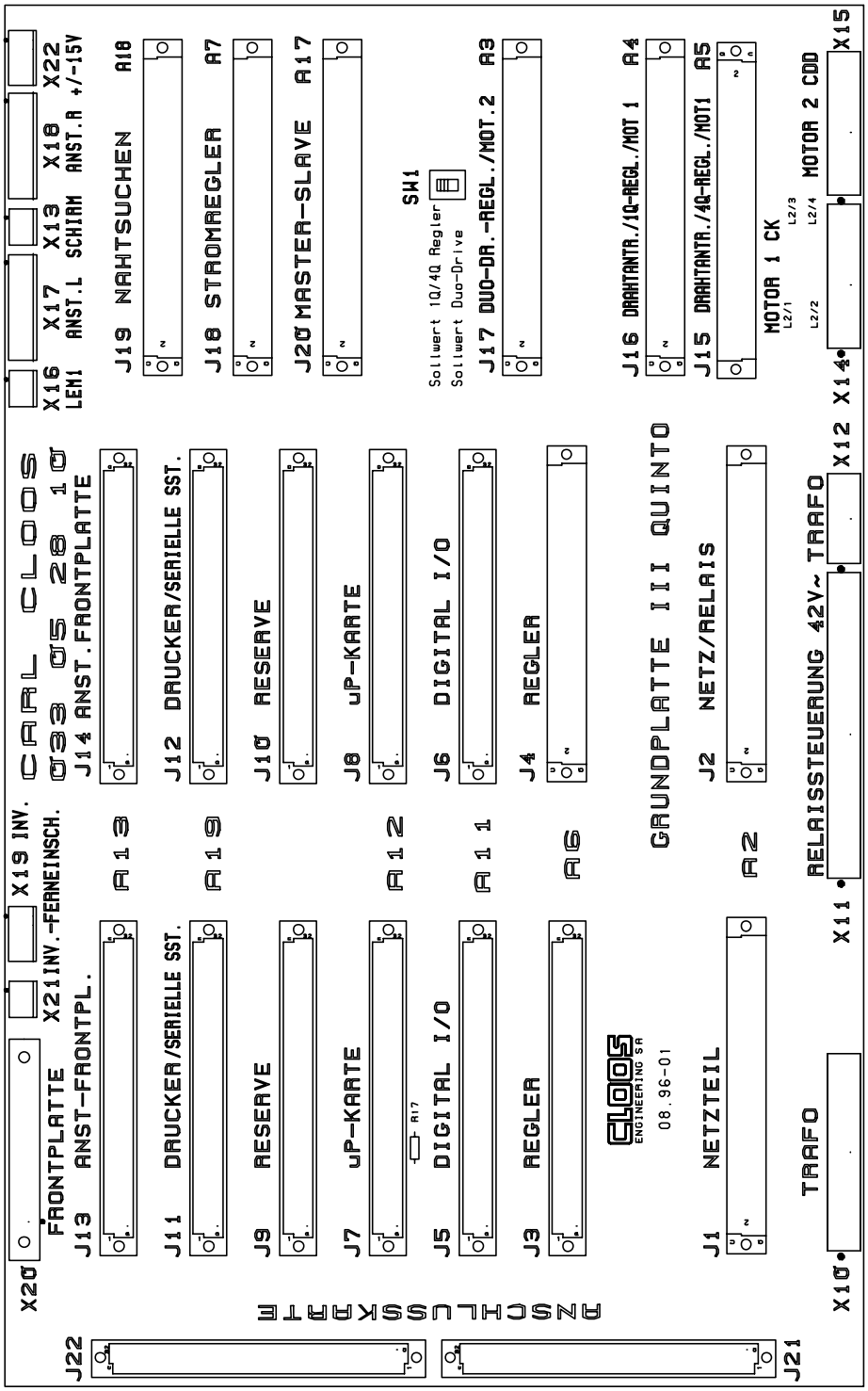


Abbildung Schweißgerät QUINTO Profi /
Illustration: Welding machine QUINTO Profi /
Illustration: Poste de soudage QUINTO Profi

Plazierung der Steuerplatten im Rack
Positioning of control board in rack
Positionnement de la platine de commande dans le rack



Werks-Nr. 033 05 28 10
Part No. 033 05 28 10
Référence 033 05 28 10

Ersatzteilliste für GLC 503 QUINTO Profi / Spare parts list for GLC 503 QUINTO Profi /
Liste des pièces de rechange pour GLC 503 QUINTO Profi

Pos.	Bestell-Nr. Ref.No./Rérérence	Bezeichnung / Description / Désignation
A	816 00 00 00	GLC 503 QUINTO Profi ab Software V1.60 /from software version V1.60 onwards / à partir du logiciel V1.60
31	033 11 48 30	Steuerplatte Pumpe und Lüfter ein / control board pump and fan on/ platine pompe et ventilateur marche
32	033 24 84 00	Netz- und Relaisplatte / mains and relay card / carte réseau et relais
33	033 33 29 50	OPTION: 4Q-Motorregler für Duo-Drive V1.60 / OPTION: 4Q motor regulation for Duo-Drive V 1.60 / OPTION: réglage moteur 4Q pour Duo-Drive V 1.60
33	033 33 31 50	OPTION: 4Q-Motorregler für Duo-Drive V 1.70 / OPTION: 4Q motor regulation for Duo-Drive V 1.70 / OPTION: réglage moteur 4Q pour Duo-Drive V 1.70
35	033 33 26 20	4Q-Motorregler für Koffermotor /4Q motor regulation for CK motor / réglage moteur 4Q pour moteur dévidoir
36	033 09 77 20	Spannungsregelung / voltage regulation / réglage tension
36/1	033 11 50 00	OPTION: Subprint Porendetektion / OPTION: Subprint for pore detection / OPTION: platine pour détection de pores
37	033 09 66 30	Stromregelung / current regulation / réglage courant
38	033 09 70 00	Treiberplatte links / left driver board / platine d'attaque gauche
39	033 09 70 10	Treiberplatte rechts / right driver board / platine d'attaque droite
40	033 11 41 00	Steuerplatte für Stromsensor / control board for current sensor / platine pour capteur courant
41	033 05 25 00	Digitale Ein-/Ausgangsplatte / digital input/output board / platine d'entrée/sortie digital
42	033 05 26 20	Mikroprozessorplatte für Standard und SD / microprocessor card for standard and SD / platine micro processeur pour standard et SD
42	033 05 26 10	Mikroprozessorplatte für SD mit CDD / micro processor board for SD with CDD / platine micro processeur pour SD avec CDD
42/1	028 10 01 35	EPROM-Satz Profi, deutsche Software /set of EPROMs Profi, German software / jeu d'EPROMS Profi, logiciel allemand
42/2	028 10 01 40	EPROM-Satz Profi SD, deutsche Software / set of EPROMS Profi SD, German software / jeu d'EPROMS Profi SD, logiciel allemand
42/3	028 10 03 01	EPROM-Satz Profi seriell, deutsche Software / set of EPROMS Profi serial, German software / jeu d'EPROMS Profi sériel, logiciel allemand
42/4	028 10 03 09	EPROM-Satz Profi SD seriell, deutsche Software/ set of EPROMS Profi SD serial, German software / jeu d'EPROMS Profi SD sériel, logiciel allemand
43	033 05 27 00	Ansteuerplatte für Frontplatte und Fernregler / control board for front plate and remote controller / platine de commande p. façade et commande à distance
44	033 05 30 00	Steuerplatte Frontwand/Bedienung / control board front panel/operation / platine façade/opération
44a	813 21 02 50	kpl. Frontplatte, deutsch - mit Steuerplatte, LCD-Display, usw. / complete front plate, German - with control board, LCD, etc./ façade complète, allemande - avec platine, affichage à cristaux liquides etc.
44b	813 21 02 40	kpl. Frontplatte, Symbole - mit Steuerplatte, LCD-Display, usw. / complete front plate, symbols - with control board, LCD, etc. / façade complète, symboles - avec platine, affichage à cristaux liquides etc.
44/3	033 51 21 00	Flüssigkristall-Display / liquid crystal display / affichage à cristaux liquides LCD
45	033 51 21 10	Inverter für Display-Beleuchtung / inverter for display lighting / inverseur pour illumination d'affichage visuel
46	027 09 15 00	Drossel für Ankerkreis / choke for armature circuit / self pour circuit d'induit
47	033 05 52 00	OPTION: Steuerplatte - Impulssynchronisation / OPTION: control board - pulse synchronization / OPTION: platine - synchronisation d'impulsions

Ersatzteilliste für GLC 503 QUINTO Profi / Spare parts list for GLC 503 QUINTO Profi /
Liste des pièces de rechange pour GLC 503 QUINTO Profi

Pos.	Bestell-Nr./ Ref.-No./Référence	Bezeichnung / Description / Désignation
48	033 05 38 10	OPTION: Steuerplatte - Nahtsuchen / OPTION: control board - seam tracking / OPTION: platine - suivi de joint
49	033 05 37 10	OPTION: Steuerplatte - serielle Schnittstelle für PC-/Druckeranschluß / OPTION: control board - serial interface for PC-/printer connection / OPTION: platine - interface sérielle pour branchement PC/imprimante
49/1	033 05 37 40	OPTION: Steuerplatte - serielle Schnittstelle für SD und Roboter seriell / OPTION: control board - serial interface for SD and serial robot / OPTION: platine - interface sérielle pour SD et robot sériel
50	033 05 28 10	Grundplatte III im Kartenrack / base plate III in card rack / plaque de base III dans rack
51	033 05 29 00	Anschlußplatte f. Kabelbäume b. Standard u. SD / connection plate for cable trees for standard and SD version/ carte de connexions pour harnais de câbles pour version standard et SD
51	033 05 29 20	Anschlußplatte f. Kabelbäume b. SD mit CDD / connection plate for cable trees for SD version with CDD / carte de connexions pour harnais de câbles pour version SD avec CDD
53	022 04 35 01	Kondensator für Lüfter, 5µF/400V~DB / capacitor for fan 5µF/400V~DB / condensateur pour ventilateur 5µF/400V~DB
54	021 01 12 69	Elko für Drahtantrieb 10.000µF/100V /Elko for wire drive 10.000µF/100V/ Elko pour entraînement de fil 10.000µF/100V
55	021 01 12 69	Elko für Zwischenkreis 10.000µF/100V / Elko for intermediate circuit 10.000µF/ 100V / Elko pour circuit intermédiaire 10.000µF/100V
56	016 02 04 01	Sicherung 4A tr./ slow fuse 4 A / fusible 4 A à action retardée
56	016 02 04 02	Sicherung 6,3A tr. / slow fuse 6,3 A / fusible 6,3 A à action retardée
56	016 02 01 29	Sicherung 10A tr. / slow fuse 10 A / fusible 10 A à action retardée
56	016 02 01 18	Sicherung 1A mT / fuse 1 A mT / fusible 1A mT
56	016 01 01 06	Sicherung 0,4A tr. / slow fuse 0,4 A / fusible 0,4 A à action retardée
56	016 02 04 03	Sicherung 2A tr. / slow fuse 2 A / fusible 2 A à action retardée
57	016 09 10 00	Schwimmerschalter / float type switch / interrupteur à flotteur
58	016 09 09 00	Durchflußwächter / flow switch / contrôleur de débit
59/1	020 03 01 07	Netzkontrolle weiß/ mains indicator lamp white / lampe témoin réseau, blanche
59/2	020 03 01 05	Startkontrolle grün/ start indicator lamp green / lampe témoin démarrage, verte
59/3	020 03 01 06	Thermokontrolle gelb/ temperature control indicator lamp yellow / lampe témoin contrôle température, yaune
59/4	020 03 01 08	Glühlampe 24V/0,7W / 24V/0,7W lamp / ampoule 24V/0,7W
60	013 01 21 00	Schütz Maschine ein 42V/50...60Hz / contactor machine on 42V/50...60Hz / contacteur machine marche 42V/50...60Hz
61	012 02 16 00	Schütz Haupttrafo ein 42V/50...60Hz / contactor main transformer on 42V/50...60Hz contacteur transformateur principal marche 42V/50...60Hz
61	012 02 13 55	Hilfsschalterblock 2S/2Ö / auxiliary switch 2S/2Ö / interrupteur auxiliaire 2S/2Ö
62	802 88 35 00	Schweißstromdrossel / welding current choke / self du courant de soudage
63	023 03 33 00	Pumpe mit Kondensator und Stecker, 230V/50Hz /pump with capacitor and plug, 230V/50Hz / pompe avec condensateur et fiche, 230V/50Hz
63	023 03 33 10	Pumpe mit Kondensator und Stecker, 230V/60Hz /pump with capacitor and plug, 230V/50Hz / pompe avec condensateur et fiche, 230V/50Hz
63/1	023 03 24 01	Dichtungssatz für Pumpenwelle/set of sealings for pump shaft / jeu de joints pour l'arbre de la pompe
64	022 04 35 00	Lüfter mit Kondensator und Stecker, 230V/50...60Hz / fan with capacitor and plug, 230V/50...60Hz / ventilateur avec condensateur et fiche, 230V/50...60Hz

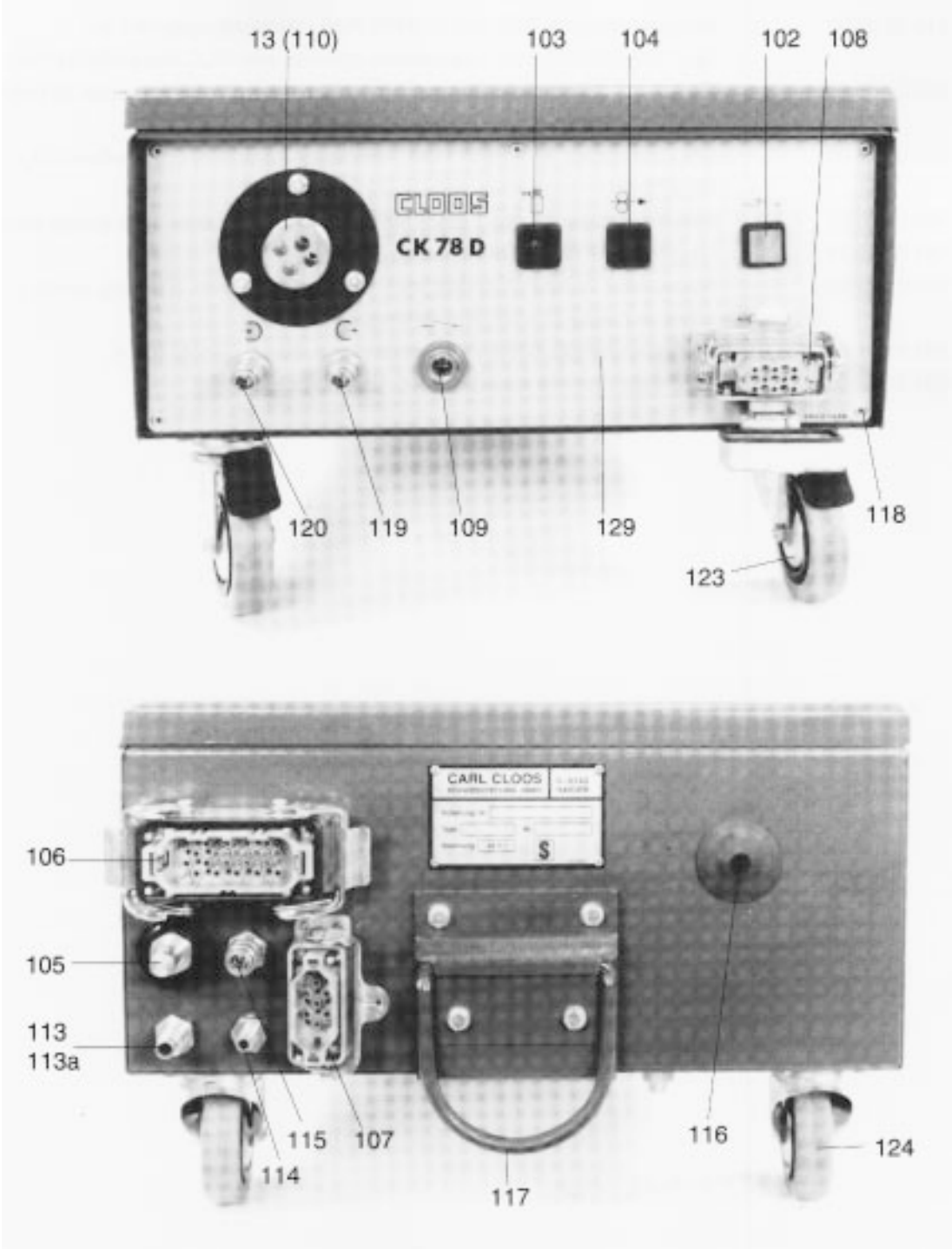
Ersatzteilliste für GLC 503 QUINTO Profi / Spare parts list for GLC 503 QUINTO Profi /
Liste des pièces de rechange pour GLC 503 QUINTO Profi

Pos.	Bestell-Nr./ Ref.-No./ Référence	Bezeichnung / Description / Désignation
65	030 04 01 87	Widerstand für Zwischenkreisladung, 10 Ohm/50W/ resistor for intermediate circuit loading, 10 Ohm/50W / résistance p. charge du circuit intermédiaire, 10 Ohm/50W
66	030 04 04 01	Entladewiderstand, 470Ohm/25W /discharge resistor, 470Ohm/25W / résistance de décharge, 470Ohm/25W
67	030 01 26 00	Widerstand, 150 Ohm/200W / resistor 150 Ohm/200W / résistance 150 Ohm/200W
68	008 01 00 20	Taster Maschine ein, grün / push button machine on, green / bouton poussoir machine marche, vert
69	008 01 00 19	Taster Maschine aus, rot / push button machine off, red / bouton poussoir machine arrêt, rouge
70	813 23 00 00	Haupttrafo 230/400V/main transformer 230/400V/transformateur principal 230/400V
71/1	027 05 11 00	Steuertrafo 230/400V - 267VA / control transformer 230/400V - 267VA / transformateur de commande 230/400V - 267VA
71/2	027 05 10 00	Steuertrafo 230/400V - 865VA / control transformer 230/400V - 865VA / transformateur de commande 230/400V - 865VA
72	028 09 01 25	Stromsensor 500A /current sensor 500A / capteur de courant 500A
73	055 13 02 10	Hauptgleichrichter mit Thermoschalter / main rectifier with thermal switch / redresseur principal avec commutateur thermique
74/1	028 03 19 00	Gleichrichter für Zwischenkreis / rectifier for intermediate circuit / redresseur pour circuit intermédiaire
74/2	028 03 19 00	Gleichrichter für Motorregler / rectifier for motor regulation / redresseur pour réglage moteur
75	055 45 10 00	Transistorkaskade kpl. mit Kondensatorbatterie, Treiberplatten und Thermoschaltern / transistor cascade compl. with capacitor battery, driver plate and thermal switch / cascade transisteur cpl. avec batterie de condensateur, plaque d'attaque et commutateur thermique
76/1	038 13 11 00	Flachbandkabel, 34adrig, kpl. / flat cable, 34 leads, compl. / câble plat à 34 conducteurs, cpl.
76/1a	027 09 18 00	Ferrit-Kern für Pos. 76/1 / ferrite core for item 76/1 / noyau ferrite pour pos. 76/1
76/2	038 13 12 00	Flachbandkabel, 20adrig, kpl./ flat cable, 20 leads, compl./ câble plat à 20 conducteurs, cpl.
77	033 04 81 10	Sicherungsleiste / fuse strip / borne à fusibles
78	073 03 12 00	Schweißstromanschluß Plus / welding current connection positive / raccord courant de soudage positive
79	073 03 12 00	Schweißstromanschluß Minus / welding current connection negative / raccord courant de soudage négatif
80	010 09 18 26	40pol. Steckdose, Anbaugehäuse/40 pole socket, housing/prise à 40 pôles, embase
80	010 09 18 24	40pol. Buchsenteil / 40 pole bush part/ pièce à douilles à 40 pôles
81	010 09 13 01	15pol. Steckdose, Anbaugehäuse/15 pole socket, housing/prise à 15 pôles, embase
81	010 09 18 29	15pol. Buchsenteil / 15 pole bush part / pièce à douilles à 15 pôles
82	010 09 18 52	72pol. Steckdose, Anbaugehäuse mit Klappdeckel/ 72 pole socket, housing with hinged cover / prise à 72 pôles, embase avec couvercle à charnière
82	010 09 19 03	72pol. Buchsenteil / 72 pole bush part / pièce à douilles à 72 pôles
82/1	010 09 19 05	72pol. Stecker, Tüllengehäuse / 72 pole plug, hood / fiche à 72 pôles, capot
82/1	010 09 19 04	72pol. Stiftteil / 72 pole multiple plug / fiche multiple à 72 pôles
82/1	010 09 18 03	Crimpstift 0,75-1,0mm^2 / crimp pin 0,75-1,0mm^2 / pin 0,75-1,0mm^2
83	033 35 19 00	Netzentstörfilter 500V/3x32A / mains interference suppression filter 500V/3x32A / filtre antiparasite 500V/3x32A
84	010 06 01 00	3pol. Steckdose CO_2-Vorwärmer/ 3 pole socket CO_2 preheater/ prise à 3 pôles, réchauffeur CO_2
85	813 21 11 00	Gerätegriff / machine handle / poignée de la machine

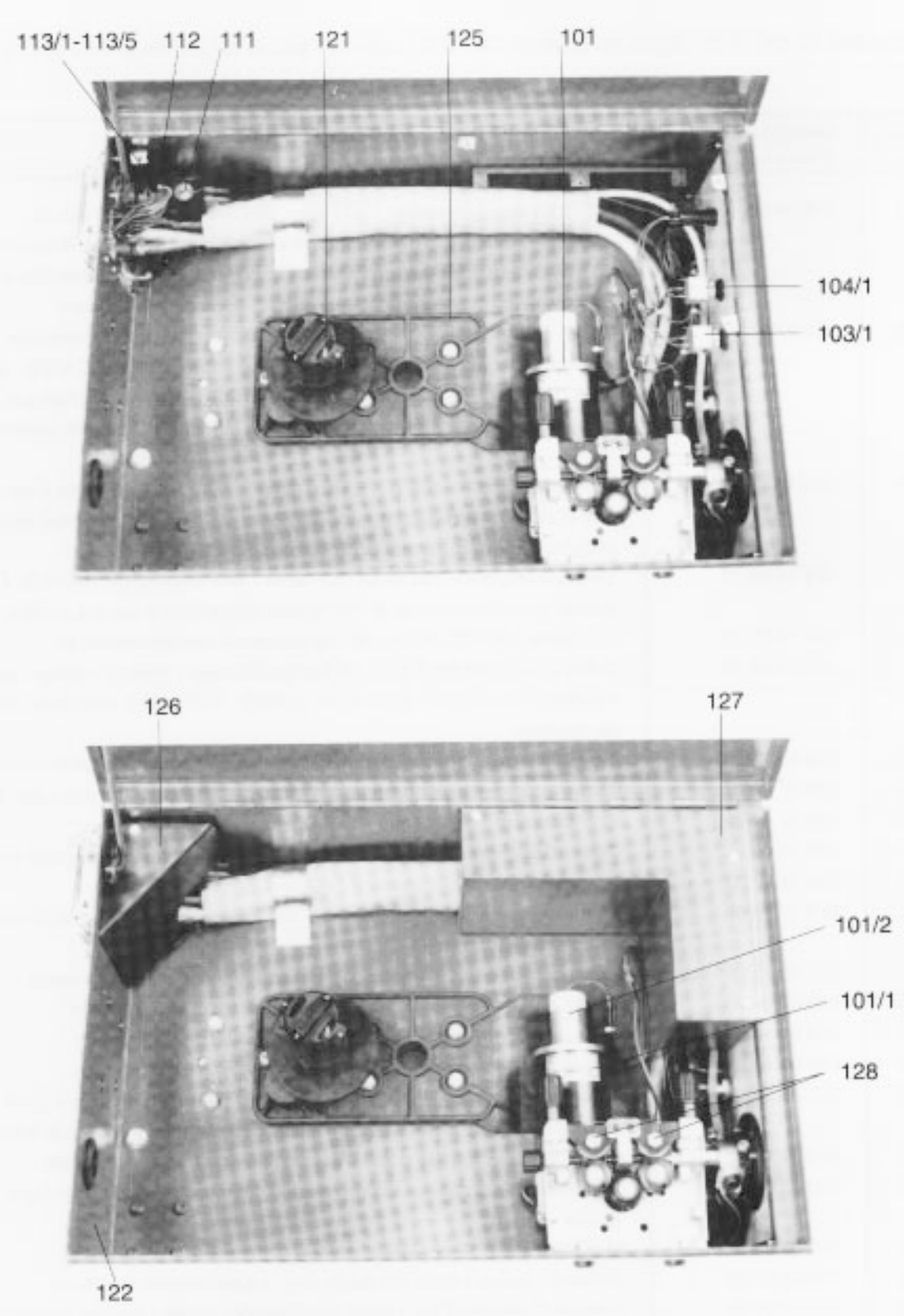
Ersatzteilliste für GLC 503 QUINTO Profi / Spare parts list for GLC 503 QUINTO Profi /
Liste des pièces de rechange pour GLC 503 QUINTO Profi

Pos.	Bestell-Nr./ Ref.-No./ Référence	Bezeichnung / Description / Désignation
86	054 10 03 10	Kühlwasserbehälter / water cooling tank / réservoir d'eau de refroidissement
86/1	054 10 03 02	Verschlußdeckel /cover / couvercle
87	813 21 08 00	Flaschenhalter, Unterteil/cylinder support, lower part /support bouteille, partie inféri.
87/1	813 21 13 00	Flaschenhalter, Oberteil/cylinder support, upper part/support bouteille, partie supéri.
87/2	049 08 14 06	Kette für Flaschenhalter / chain for cylinder support/ chaîne pour support bouteille
88	054 03 27 10	Kühlradiator / cooling radiator / radiateur de refroidissement
89/1	049 06 00 08	Bockrolle 200mmØ / fixed roller 200mmØ / galet de fixation 200mmØ
89/2	049 06 00 07	Lenkrolle 200mmØ / guide roller 200mmØ / galet guide 200mmØ
90	035 03 17 00	Kabelverschraubung Pg 29 für Netzkabel / screwed cable gland Pg29 for mains cable / presse-étoupe Pg29 pour câble d'alimentation
90/1	035 03 06 01	Gegenmutter Pg 29 / counter nut Pg 29 / contre-écrou Pg 29
91/1	032 03 00 37	Anschluß Kühlwasser zurück / connection - cooling water back / raccord - eau de refroidissement en retour
91/2	032 03 00 37	Anschluß Kühlwasser vor / connection - cooling water forward / raccord - eau de refroidissement en avant
92	049 01 02 78	Drehknopf / rotary knob / bouton rotatif
93	054 01 02 02	Entleerungshahn für Kühlwasser / drain cook for cooling water / robinet de vidange pour eau de refroidissement
94	022 04 34 10	Filtergehäuse mit Filtermatte/ filter housing avec filter mat /boîte de filtre avec natte
94/1	022 04 34 11	Filtermatte / filter mat / natte de filtre
95	016 09 11 00	Wasserfilter / water filter / filtre d'eau
	813 30 05 00	Erstausrüstung für GLC 503 QUINTO Profi / standard equipment f. GLC503 QUINTO Profi/ équipement standard p. GLC 503 QUINTO Profi
	080 04 00 00	Reduzierventil mit Skala 20 l/min.0,85 / reducing valve with 20 l/min scale 0,85 / manodétendeur avec échelle 20 l/min. 0,85
	080 01 06 00	CO_2-Vorwärmer 42V/75W / CO_2 preheater 42V/75W / réchauffeur CO_2 42V/75W
	080 01 03 02	Ersatzheizkörper für dto. / spare radiator for dito / radiateur de rechange pour dito
	101 91 20 12	Ringmutter M12 / nut M12 / écrou à anneau M12
	555 01 03 00	Massekabel 95mm², 5m lang, kpl. / earth cable 95mm², 5 m long, compl. / câble de masse 95mm², 5 m de longueur, cpl.
	085 01 01 02	Werkstückzwinge 600A / workpiece clamp, 600 A / pince, 600 A
	038 01 68 00	Fernregler für 5 Parameter / remote controller for 5 parameter / commande à distance pour 5 paramètres

Abbildungen Drahtantriebsaggregat / Illustrations: Wire drive unit / Illustrations: Coffret d'entraînement de fil



Drahtantriebsaggregat CK 78 D - Hand
Wire drive unit CK 78 D - manual operation
Coffret d'entraînement de fil CK 78 D - opération manuelle



Drahtantriebsaggregat CK 78 D - Hand
Wire drive unit CK 78 D - manual operation
Coffret d'entraînement de fil CK 78 D - opération manuelle

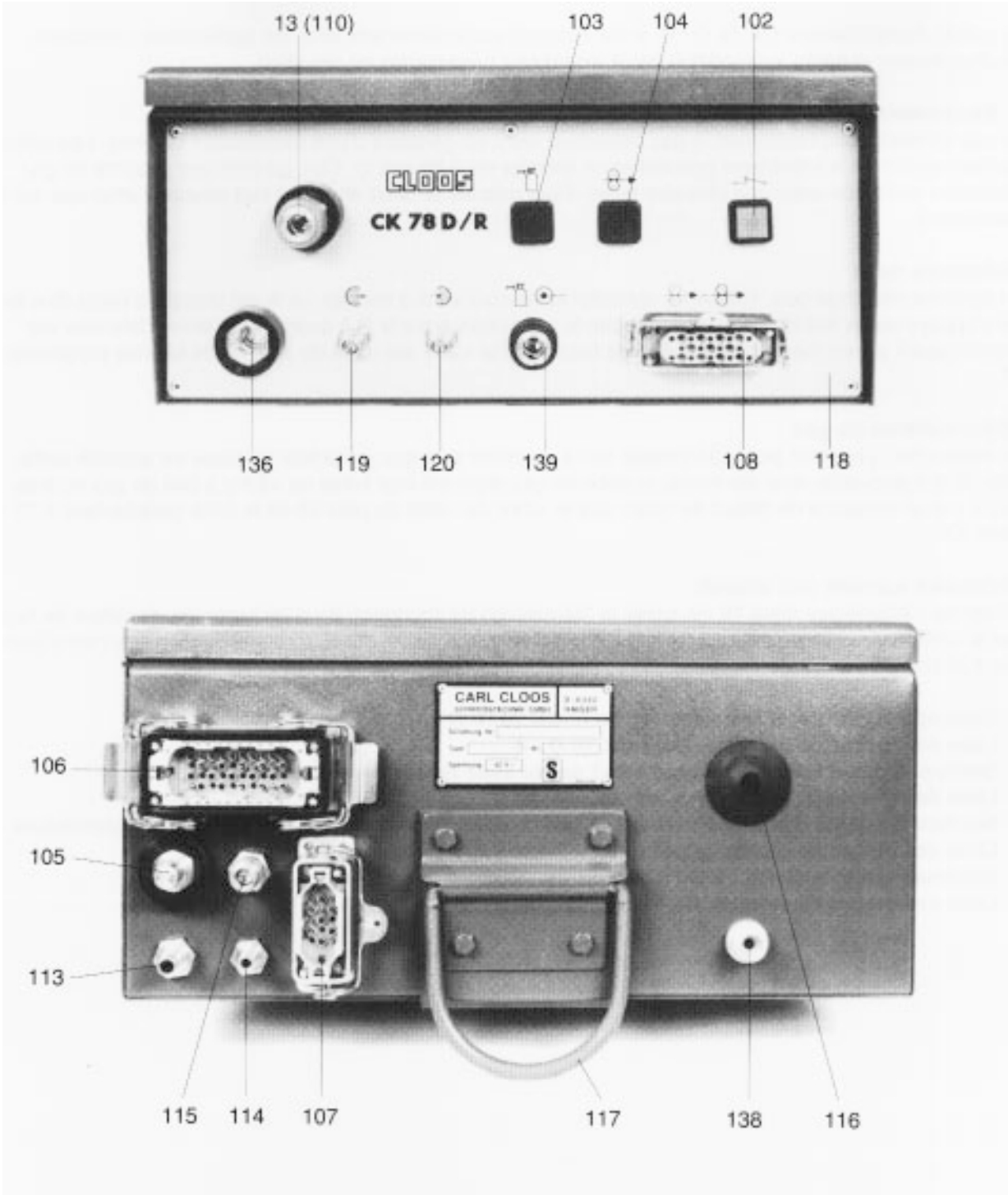
Ersatzteilliste für CK 78 D / Spare parts list for CK 78 D / Liste des pièces de rechange pour CK 78 D

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung Description / Désignation
A	606 30 00 00	CK 78 D, Handschweißen, DC-Tacho, Drahtantriebsrolle 30 mm Ø, 2+2-Rollenantrieb / CK 78 D, manual welding, DC-tacho, wire drive roller 30 mm Ø, 2+2 roller system / CK 78 D, soudage manuel, tachymètre à courant continu, galet d'entraînement fil Ø 30 mm, système à 2+2 galets
101	024 14 28 10	Drahtantriebsmotor 100 W mit DC-Tacho, kpl. für CK 78 D / wire drive motor 100 W with DC-tacho, compl. for CK 78 D / moteur d'entraînement de fil 100 W avec tachymètre à courant continu, cpl. pour CK 78 D
101/1	024 14 28 00	Drahtantriebsmotor 100 W für DC-Tacho / wire drive motor 100 W for DC-tacho/ moteur d'entraînement de fil 100 W pour tachymètre à courant continu
101/2	024 14 27 00	DC-Tacho und / DC-tacho and / tachymètre à courant continu et
	024 14 28 12	Zwischenstück-Motor-Tacho, mit Montagehinweis / adaptor - motor - tacho, with mounting instructions / adaptateur - moteur - tachymètre, avec instructions de montage
102	008 01 00 19	Taster Maschine aus / push button machine off / bouton poussoir machine arrêt
103	008 01 00 21	Taster Gas von Hand / push button gas by hand /bouton poussoir gaz à la main
103/1	008 01 00 22	Schaltelement / circuit element / élément de circuit
104	008 01 00 21	Taster Draht von Hand / push button wire by hand / bouton poussoir fil à la main
104/1	008 01 00 22	Schaltelement / circuit element / élément de circuit
105	073 03 19 00	Einbausteckerteil, kpl. / built-in male connector, compl. / connecteur mâle en castré, cpl.
106	010 09 18 26	Anbaugehäuse-Steuerung / housing - control / embase - commande
106	010 09 18 23	40-pol. Stiftteil / 40 pole multiple plug / fiche multiple à 40 pôles
107	010 09 13 01	Anbaugehäuse-Tacho / housing - tacho / embase - tachymètre
107	010 09 18 28	15-pol. Stiftteil / 15 pole multiple plug / fiche multiple à 15 pôles
108	010 09 13 05	Anbaugehäuse mit Klappdeckel-Fernregler / housing with hinged cover remote controller / embase avec régulateur à distance à couvercle à charnière
108	010 09 18 29	15-pol. Buchsenteil / 15 pole bush part / pièce à douille à 15 pôles
109	010 03 03 00	Steckdose Pistole Steuerleitung / socket torch control lead / prise ligne pilote de torche
109	010 03 03 02	Isolierring innen / inner insulation ring / bague isolante intérieure
109	010 03 03 03	Isolierring außen / outer insulation ring / bague isolante extérieure
13(110)	604 04 06 00	Pistolen-Z-Anschluß kpl. / torch Z-connection, compl. / raccord central de la torche cpl.
111	032 02 05 00	Magnetventil für Schutzgas 42 V/50 ... 60 Hz / solenoid valve for shielding gas 42 V/50...60 Hz/ électrovanne pour gaz protecteur 42 V/50...60 Hz
112	048 05 15 01	Gasstaurohr / gas retaining tube / tube de retient de gaz
113	032 03 00 40	Stecknippel kpl. für Gas, mit Drossel NW 0,6 Ø / plug-in nipple compl. for gas, with choke NW 0,6 Ø / nipple enfichable cpl. p. gaz, avec self NW 0,6 Ø

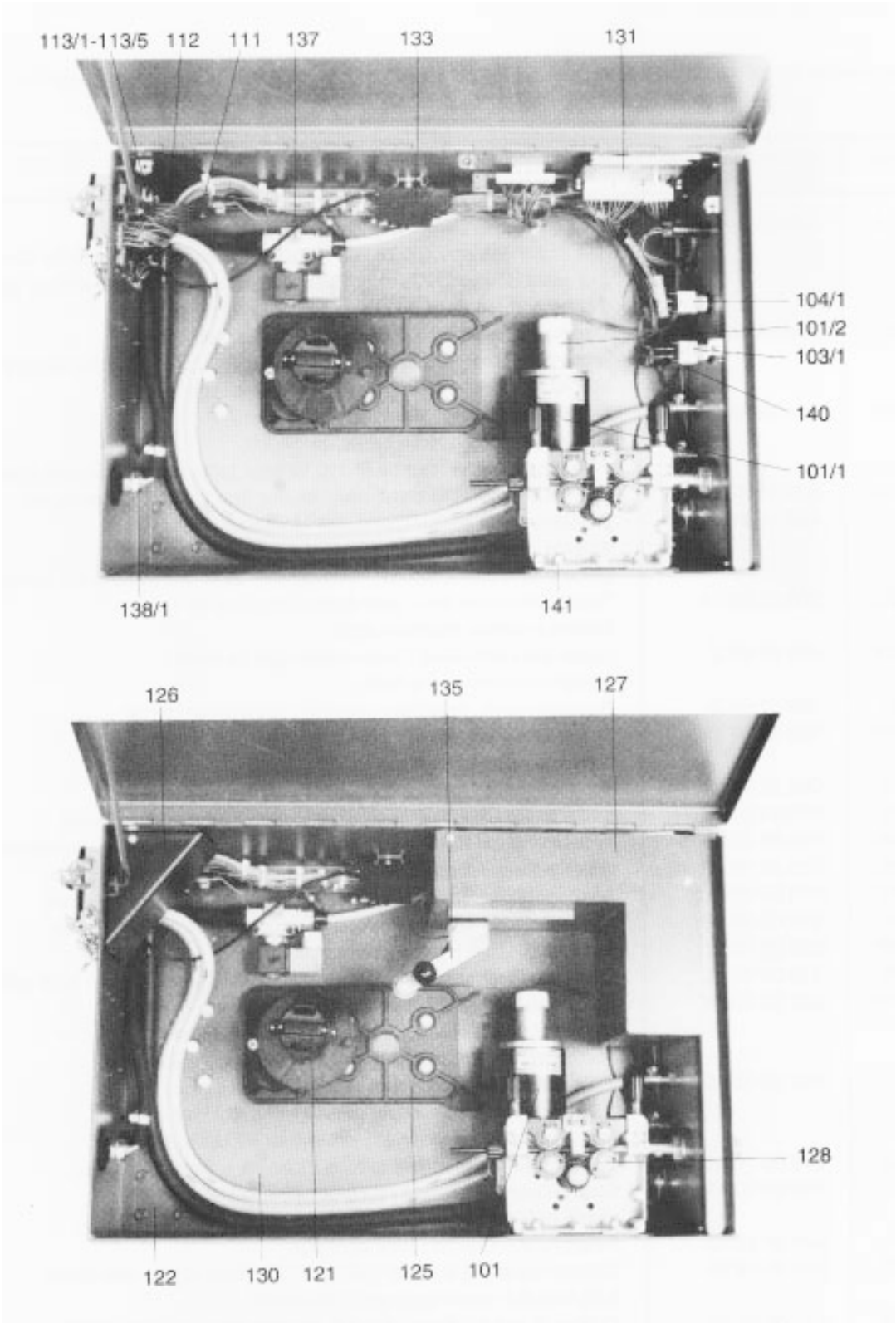
Ersatzteilliste für CK 78 D / Spare parts list for CK 78 D / Liste des pièces de rechange pour CK 78 D

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
113a	032 03 00 41	Stecknippel kpl. für Gas, mit Drossel NW 2,0 Ø / plug-in nipple compl. for gas, with choke NW 2,0 Ø / nipple enfichable cpl. p. gaz, avec self NW 2,0 Ø
113/1	048 05 02 02	Filtereinsatz, Bronze / filter cartridge, bronze /cartouche filtrante en bronze
113/2	048 05 15 03	Gasdrossel NW 0,6 Ø / gas choke NW 0,6 Ø / self de gaz NW 0,6 Ø
113a/2	048 05 15 05	Gasdrossel NW 2,0 Ø / gas choke NW 2,0 Ø / self de gaz NW 2,0 Ø
113/3	110 08 01 50	O-Ring Ø 8 x 1,5 / O-ring Ø 8 x 1,5 / bague d'étanchéité Ø 8 x 1,5
113/4	104 50 00 11	Sicherungsring 11 x 1 / lock washer 11 x 1 / rondelle d'arrêt 11 x 1
113/5	032 03 00 39	Stecknippel / plug-in nipple / nipple enfichable
114	032 03 00 35	Stecktülle, Wasser vor / connector, water forward / connecteur, avance d'eau
115	032 03 00 36	Verschlußkupplung, Wasser zurück / locking clutch, water back / raccord de fermeture, retour d'eau
116	035 01 00 07	Gummitülle / rubber bush / douille en caoutchouc
117	454 01 02 01	Aufhängegriff / suspension hook / suspension
118	090 01 16 98	Frontschild CK 78 D / front plate CK 78 D / plaque avant CK 78 D
119	032 03 00 37	Anschluß Wasser vor (blau) / connection water advance (blue) raccord eau en avant (bleu)
120	032 03 00 37	Anschluß Wasser zurück / connection water return/raccord eau en retour
121	047 12 00 00	Drahtvorratsrollenhalterung kpl. / wire coil support compl. / support de la bobine de fil cpl.
122	645 25 97 00	Gehäuse kpl. / housing compl. / embase cpl.
123	049 06 00 11	Feststellrolle vorne / front fixed roller / galet de fixation avant
124	049 06 00 18	Lenkrolle hinten / rear guide roller / galet guide arrière
125	645 25 89 11	Grundplatte / base plate / plaque de base
126	644 01 00 17	Abdeckung für VSP-Kupplung / cover for cable assembly coupling / couvercle pour accouplement du faisceau de câbles
127	645 25 97 40	Abdeckung an Frontplatte / cover on front plate / couvercle sur plaque avant
128	033 17 39 50	Umbausatz 4-Rollenantrieb / conversion kit 4 roller drive / kit de transformation entraînement à 4 galets
129	033 17 40 00	Umbausatz TW-Steckdose / conversion kit TW-socket / kit de transformation prise TW

Abbildungen Drahtantriebsaggregat / Illustrations: Wire drive unit / Illustrations: Coffret d'entraînement de fil



Drahtantriebsaggregat CK 78 D/R
Wire drive unit CK 78 D/R
Coffret d'entraînement de fil CK 78 D/R



Drahtantriebsaggregat CK 78 D/R
Wire drive unit CK 78 D/R
Coffret d'entraînement de fil CK 78 D/R

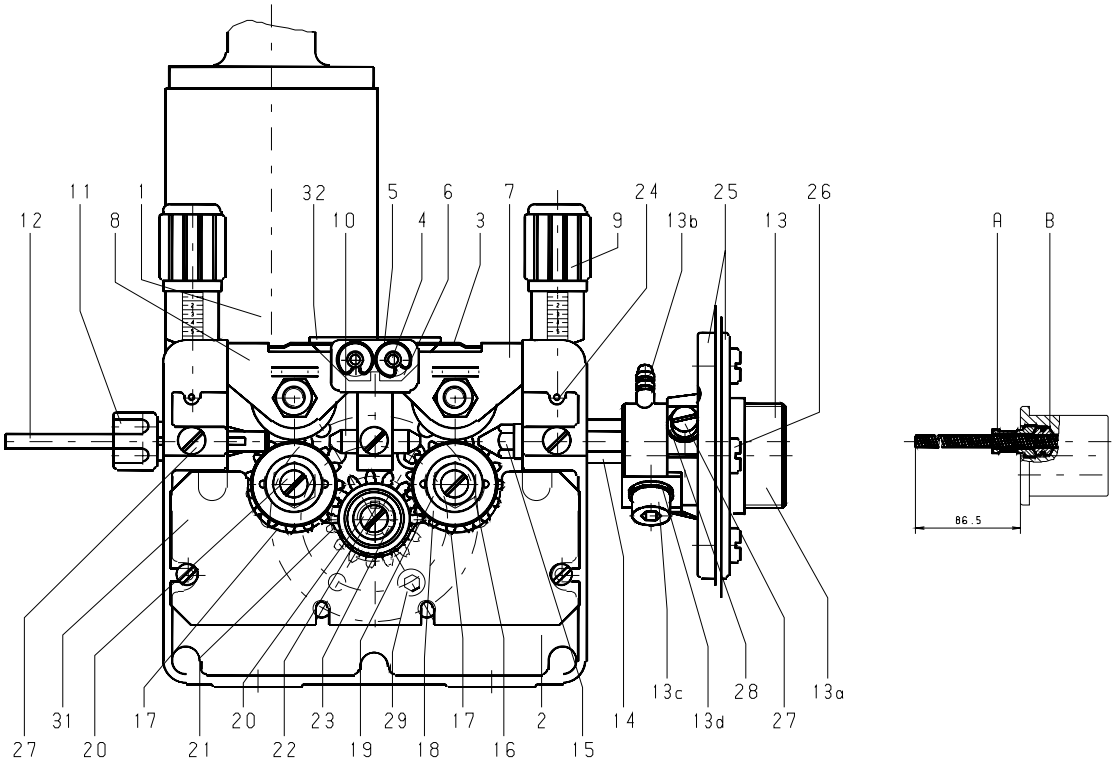
Ersatzteilliste für CK 78 D/R / Spare parts list for CK 78 D/R / Liste des pièces de rechange pour CK 78 D/R

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
A	606 27 00 00	CK 78 D/R, mit DC-Tacho, Drahtantriebsrolle 30 mm Ø, 2+2 Rollenantrieb / CK 78 D/R, with DC-tacho, wire drive roller 30 mm Ø, 2+2 roller drive / CK 78 D/R, avec tachymètre à courant continu, galet d'entraînement de fil 30 mm Ø, système à 2+2 galets
101	024 14 28 10	Drahtantriebsmotor 100 W mit DC-Tacho, kpl. / wire drive motor 100 W with DC-tacho cpl. / moteur d'entraînement de fil 100 W avec tachymètre à courant continu, cpl.
101/1	024 14 28 00	Drahtantriebsmotor 100 W für DC-Tacho / wire drive motor 100 W for DC-tacho / moteur d'entraînement de fil 100 W pour tachymètre à courant continu
101/2	024 14 27 00 024 14 28 12	DC-Tacho und / DC tacho and / tachymètre à courant continu et Zwischenstück Motor-Tacho, mit Montagehinweis / adapter piece motor-tacho, with mounting instructions / pièce d'adaptateur moteur - tachymètre, avec instructions de montage
102	008 01 00 19	Taster Maschine aus / push button machine off / bouton poussoir machine arrêt
103	008 01 00 21	Taster Gas von Hand / push button gas by hand / bouton poussoir gaz à main
103/1	008 01 00 22	Schaltelement / switching element / élément de circuit
104	008 01 00 21	Taster Draht von Hand / push button wire by hand bouton poussoir fil à main
104/1	008 01 00 22	Schaltelement / switching element / élément de circuit
105	073 03 23 00	Einbausteckerteil, kpl. / built-in plug, cpl. / fiche encastrée cpl.
106	010 09 18 26	Anbaugehäuse-Steuerung / housing - control / embase - commande
106	010 09 18 23	40pol. Stiftteil / 40 pole multiple plug / fiche multiple à 40 pôles
107	010 09 13 01	Anbaugehäuse-Tacho / housing - tacho / embase - tachymètre
107	010 09 18 28	15pol. Stiftteil / 15 pole multiple plug / fiche multiple à 15 pôles
108	010 09 10 01	Anbaugehäuse / housing / embase
108	010 09 18 12	25pol. Buchsenteil / 25 pole multiple socket / prise multiple à 25 pôles
13(110)	032 03 00 46	Steckkupplung NW 7,2; rot; für Drahtanschluß / plug-in coupling NW 7,2, red, for wire connection / accouplement enfichable NW 7,2, rouge, pour raccord fil
111	032 02 05 00	Magnetventil für Schutzgas 42V/50...60 Hz / solenoid valve for shielding gas 42 V/50...60 Hz / vanne magnétique pour gaz protecteur 42 V/50...60 Hz
112	048 05 19 01	Gasstaurohr / gas retaining tube / tube de retient de gaz cpl.
113	032 03 00 41	Stecknippel kpl. für Gas / plug-in nipple cpl. for gas / nipple enfichable cpl. pour gaz
113/1	048 05 02 02	Filtereinsatz, Bronze / filter cartridge,
113/2	048 05 19 02	Drosselnippel mit Drossel 0,85 mm Ø / choke nipple with choke 0,85 mm Ø / nipple avec self 0,85 mm Ø
113/3	110 08 01 50	O-Ring Ø 0x1,5 / O-ring Ø 0x1,5 / bague d'étanchéité Ø 0x1,5
113/4	104 50 00 11	Sicherungsring 11x1 / Seeger ring 11x1 / bague Seeger 11x1
113/5	032 03 00 39	Stecknippel / plug-in nipple / nipple enfichable
114	032 03 00 35	Stecktülle, Wasser vor / plug-in hood, water advance capot à fiche, avance d'eau

Ersatzteilliste für CK 78 D/R / Spare parts list for CK 78 D/R / Liste des pièces de rechange pour CK 78 D/R

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
115	032 03 00 36	Verschlußkupplung, Wasser zurück / locking clutch, water return / raccord de fermeture, retour d'eau
116	035 01 00 07	Gummitülle / rubber bush / douille en caoutchouc
117	454 01 02 01	Aufhängegriff / suspension handle / poignée de suspension
118	090 01 17 11	Frontschild CK 78 D/R / front plate CK 78 D/R / plaque avant CK 78 D/R
119	032 03 00 37	Anschluß Wasser vor (blau) / connection water forward (blue) raccord avance d'eau (bleu)
120	032 03 00 37	Anschluß Wasser zurück / connection water backward / raccord retour d'eau
121	047 12 00 00	Drahtvorratsrollenhalterung / wire coil support / support de la bobine de fil
122	645 26 02 00	Gehäuse kpl / housing cpl. / embase cpl.
125	645 25 89 11	Grundplatte / base plate / plaque de base
126	645 26 02 06	Abdeckung für VSP-Kupplung / cover for cable assembly - coupling / couvercle pour faisceau de câbles - accouplage
127	645 25 97 40	Abdeckung an Frontplatte / cover on front plate / couvercle sur plaque avant
128	033 17 39 50	Umbausatz 4-Rollenantrieb / conversion kit 4 roller drive/ kit de modification système d'entraînement à 4 galets
130	645 26 02 05	Abdeckung für Bodenplatte / cover for base plate / couvercle pour plaque de base
131	033 24 86 20	Steuerplatte Drahtkontrolle / control plate wire control / platine pour contrôle fil
133	016 07 06 00	Druckschalter für Gaskontrolle / push button forgas control / bouton poussoir pour contrôle gaz
135	043 08 18 00	Drahtendefühler / wire end sensor / détecteur de la fin du fil
136	073 03 10 00	Schweißstromanschluß Plus, kpl. / welding current connection plus cpl. / raccord courant de soudage plus cpl.
137	032 02 47 00	Magnetventil für Pistole ausblasen, 24 V= / solenoid valve for torch blow-through, 24 V= / vanne magnétique pour nettoyage pneumatique de la torche
138	048 01 00 16	Anschluß für Druckluft / connection for compressed air / raccord pour air comprimé
138/1	032 06 00 62	Winkel-Einschraubanschluß für dto. / angle - screwed connection for dto./ angle - raccord à vis pour dto.
139	032 03 00 47	Anschluß Schutzgas/Pistole ausblasen / connection shielding gas/torch blow-through / raccord gaz protecteur / nettoyage pneumatique de la torche
140	032 02 48 00	Oder-Ventil / OR-valve / soupape OU
141	049 01 02 68	Isolierplatte / insulation plate / plaque d'isolation
141	049 01 02 69	Isolierbuchse / insulation bush / douille d'isolation
141	104 12 08 20	Senkschraube M 8x20 / countersunk head screw M 8x20 / boulon à tête fraisée M 8x20

Schnittzeichnung 2 + 2 Rollen-Drahtantrieb mit Zentralanschluß /
Sectional Crawing: 2 + 2 roller system with central connection /
Vue partielle: Système d´entraînement de fil à 2 + 2 galets avec raccord central



Drahtantrieb kpl Wire drive compl. Entraînement de fil compl.	Bestell-Nr. 043 46 00 00. Order-No. 043 46 00 00 Réference 043 46 00 00	**S498**

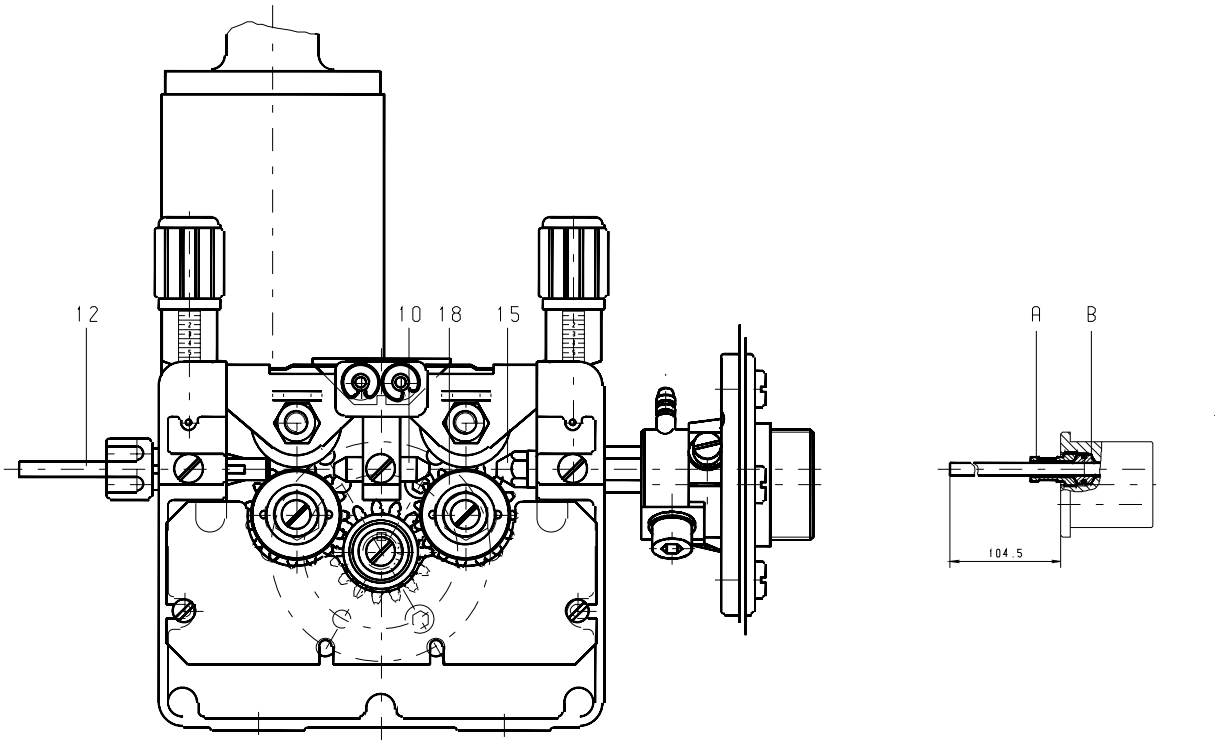
Ersatzteilliste 2+2-Rollenantrieb kpl. mit Zentralanschluß für Stahldraht und Röhrchendraht /
Spare parts list 2+2 roller drive compl. with central connection for steel and flux cored wire /
Liste des pièces de rechange pour système à 2+2 galets cpl. avec raccord central pour fil acier et fil fourré

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	043 46 00 00	Drahtantrieb kpl. ohne Motor / wire drive compl. without motor / entraînement de fil cpl. sans moteur
1		Motor ohne Scheibenfeder und Sicherungsring / motor without curved washer and Seeger ring / moteur sans rondelle élastique bombée et bague Seeger
2	043 46 00 01	Grundplatte / base plate / plaque de base
3	043 46 00 02	Feder für Druckrollenbügel / spring for pressure roller clip / ressort pour coque contre-galet
4	043 46 00 03	Paßstift für Druckrollenbügel / set pin for pressure roller clip / goujon pour coque contre-galet
5	043 46 00 04	Sicherungsring für Druckrollenbügel / Seeger ring for pressure roller clip / bague Seeger pour coque contre-galet
6	043 46 00 05	Distanzbuchse lang/ distance bush lang / douille d'écartement lang
	043 46 00 17	Distanzbuchse kurz (in Verbindung mit Pos. 31) / distance bush kurz (in Verbindung mit Pos. 31) / douille d'écartement kurz (in Verbindung mit Pos. 31)
7	043 46 01 00	Druckrollenbügel rechts kpl. besteht aus / pressure roller clip, right, compl., composed of: / coque contre-galet, droite, cpl., se composant de:
	043 46 01 01	Druckrollenbügel / pressure roller clip / coque contre-galet
	043 46 01 02	Aufnahmebolzen / mounting bolt / boulon de montage
	043 46 01 03	Abstandsbuchsen / distance bush / douille d'écartement
	043 46 01 04	Gegendruckrolle / counter pressure roller / rouleau de contre pression
	043 46 01 05	Mutter M8 / nut M8 / écrou M8
8	043 46 02 00	Druckrollenbügel links kpl. besteht aus - siehe Pos. 7 / pressure roller clip, left, compl. composed of - see item 7 / coque contre-galet gauche cpl., se composant de - voir pos. 7
9	043 44 00 19	Druckeinheit kpl. / pressure unit compl. / unité de pression cpl.
10	043 46 00 06	Drahtführungsstück kpl. für Draht Ø 0.8-1.6 / wire guide piece compl. for wire Ø 0.8 - 1.6 / pièce guide-fil cpl. pour fil Ø 0.8 - 1.6
	043 46 00 07	dto. für Draht Ø 1.6-3.2 / dto. for wire Ø 1.6 - 3.2 / dto. pour fil Ø 1.6 - 3.2
11	043 44 00 04	Drahteinlaufstück für Draht Ø 0.8-3.2 / wire inlet piece for wire Ø 0.8 - 3.2 / pièce d'entrée fil pour fil Ø 0.8 - 3.2
12	043 44 00 14	Drahtführungsspirale für Draht Ø 0.8-1.6 / wire guide spiral for wire Ø 0.8-1.6 / spirale guide-fil pour fil Ø 0.8 - 1.6 Von der jeweiligen Spirale der Pistole werden ca. 70 mm eingesetzt. Klemmung durch Konus in Pos.11 / approx. 70 mm of the relevant spiral of the torch are used. Clamping by cone in item 11 / environ 70 mm de la spirale correspondante de la torche sont utilisés. Serrage par cône dans pos. 11
13	604 04 06 00	Zentralanschluß kpl. bestehend aus / central connection compl. composed of:/ raccord central cpl., composé de:
13a	604 04 06 01	Zentralanschluß / central connection / raccord central
13b	604 04 06 02	Gasanschlußnippel/ gas connection nipple / nipple raccord gaz
13c	102 20 80 10	Zylinderschraube/ cylinder screw / vis cylindrique
13d	100 70 80 00	U-Scheibe / washer / rondelle
14	043 46 00 11	Verbindungsstück / connection piece / pièce de raccordement
15	043 45 00 08	Drahteinlaufdüse für Draht Ø 0.8 / wire inlet nozzle for wire Ø 0.8 / tuyère d'entrée fil pour fil Ø 0.8
	043 45 00 10	dto. für Draht Ø 1.0 / dto. for wire Ø 1.0 / dto. pour fil Ø 1.0
	043 45 00 12	dto. für Draht Ø 1.2 / dto. for wire Ø 1.2 / dto. pour fil Ø 1.2

Ersatzteilliste 2+2-Rollenantrieb kpl. mit Zentralanschluß für Stahldraht und Röhrchendraht /
Spare parts list 2+2 roller drive compl. with central connection for steel and flux cored wire /
Liste des pièces de rechange pour système à 2+2 galets cpl. avec raccord central pour fil acier et fil fourré

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	043 45 00 14	dto. für Draht Ø 1.4 / dto. for wire Ø 1.4 / dto. pour fil Ø 1.4
	043 45 00 16	dto. für Draht Ø 1.6 / dto. for wire Ø 1.6 / dto. pour fil Ø 1.6
	043 45 00 20	dto. für Draht Ø 2.0 / dto. for wire Ø 2.0 / dto. pour fil Ø 2.0
	043 45 00 24	dto. für Draht Ø 2.4 / dto. for wire Ø 2.4 / dto. pour fil Ø 2.4
	043 45 00 28	dto. für Draht Ø 2.8 / dto. for wire Ø 2.8 / dto. pour fil Ø 2.8
	043 45 00 32	dto. für Draht Ø 3.2 / dto. for wire Ø 3.2 / dto. pour fil Ø 3.2
16	043 46 00 08	Aufnahmebolzen für Zahnrad und Antriebsrolle / mounting bolt for toothed wheel and drive roller / boulon de fixation pour roue dentée et galet d'entraînement
17	043 46 01 12	Zahnrad für Motor für 2+2 / 4-Rollenantrieb
18	046 03 20 10	Drahtantriebsrolle für Draht Ø 0.8+1.0 / wire drive roller for wire Ø 0.8+1.0 / galet d'entraînement pour fil Ø 0.8+1.0
	046 03 20 12	dto. für Draht Ø 1.0+1.2 / dto. for wire Ø 1.0+1.2 / dto. pour fil Ø 1.0+1.2
	046 03 20 14	dto. für Draht Ø 1.4+1.6 / dto. for wire Ø 1.4+1.6 / dto. pour fil Ø 1.4+1.6
	046 03 20 16	dto. für Draht Ø 1.2+1.6 / dto. for wire Ø 1.2+1.6 / dto. pour fil Ø 1.2+1.6
		Alternativ Antriebsrollen (kalibriert)/ Alternatively Wire drive rollers (calibrated) Alternative: galets d'entraînement (calibrés)
	046 03 26 09	Antriebsrolle für Draht Ø 0,9/ wire drive roller for Ø 0.9 / galet d'entraînement pour Ø 0,9
	046 03 26 10	dto. für Draht Ø 1,0/ dto. for wire Ø 1.0 / dto. pour fil Ø 1.0
	046 03 26 12	dto. für Draht Ø 1,2/ dto. for wire Ø 1.2 / dto. pour fil Ø 1.2
	046 03 26 13	dto. für Draht Ø 1,32/ dto. for wire Ø 1.32 / dto. pour fil Ø 1.32
	046 03 26 16	dto. für Draht Ø 1,6/ dto. for wire Ø 1.6 / dto. pour fil Ø 1.6
		Röhrchendraht-Antriebsrollen (gerändelt) / Flux-cored wire drive rollers (knurled) Galets d'entraînement pour fil fourré (moleté)
	046 03 22 16	Antriebsrolle für Draht Ø1,0/1,2R+Ø1,4/1,6R/ wire drive roller for wire / galet d'entraînement pour fil Ø1,0/1,2R+Ø1,4/1,6R
	046 03 22 24	dto. für Draht Ø1,4/1,6R+Ø2,0/2,4R/ dto. for wire Ø1,4/1,6R+Ø2,0/2,4R / dto. pour fil Ø1,4/1,6R+Ø2,0/2,4R
	046 03 22 32	dto. für Draht Ø2,8/3,2R / dto. for wire Ø2,8/3,2R / dto. pour fil Ø2,8/3,2R
	043 46 00 09	U-Scheibe / washer / rondelle
20	043 44 00 15	Halteschraube mit Bund M4x6 / fixing screw with collar M4x6 / vis de fixation avec collet M4x6
21	043 46 01 13	Zahnrad auf Motorwelle / toothed wheel on motor shaft / roue dentée sur l'arbre du moteur
22	043 17 00 06	Scheibenfeder auf Motorwelle / spring on motor shaft / ressort sur l'arbre du moteur
23	101 40 00 10	Sicherungsring auf Motorwelle / Seeger ring on motor shaft / bague Seeger sur l'arbre du moteur
24	043 44 00 18	Paßstift Druckeinheit / set pin pressure unit / goujon unité de pression
25	043 44 00 05	Plastikgehäuse mit Scheibe / plastic housing with disk / embase en plastique avec rondelle
26	104 81 06 16	Linsenschraube M6 x M16 /oval head screw M6xM16/vis à tête bombée M6xM16
27	100 20 60 12	Zylinderschraube M6x12 / cylinder screw M6x12 / vis cylindrique M6x12
28	100 72 60 00	U-Scheibe A6.4 / washer A6.4 / rondelle A 6.4
29	103 80 60 15	Zylinderschraube M6x15 / cylinder screw M6x15 / vis cylindrique M6x15
		Integrierte Spiralenklemmung im Anschlußstück des VSP / spiral clamping integrated in connection piece of cable assembly / serrage de spirale intégré dans la pièce de raccordement du faisceau de câbles
A	604 02 22 00	Spannschraube / clamping screw / vis de serrage
B	604 02 23 00	Spanneinsatz für Spirale a Ø 4.0-4.9 / fastening device for spiral, outer Ø 4.0 - 4.9 / dispositif de fixation pour spirale, dia. extérieur 4.0-4.9
		Röhrchendrahtausrüstung / equipment for flux cored wire / équipement pour fil fourré

Schnittzeichnung 2 + 2 Rollen-Drahtantrieb mit Zentralanschluß /
Sectional Drawing: 2 + 2 roller system with central connection /
Vue partielle: Système d´entraînement de fil à 2 + 2 galets avec raccord central



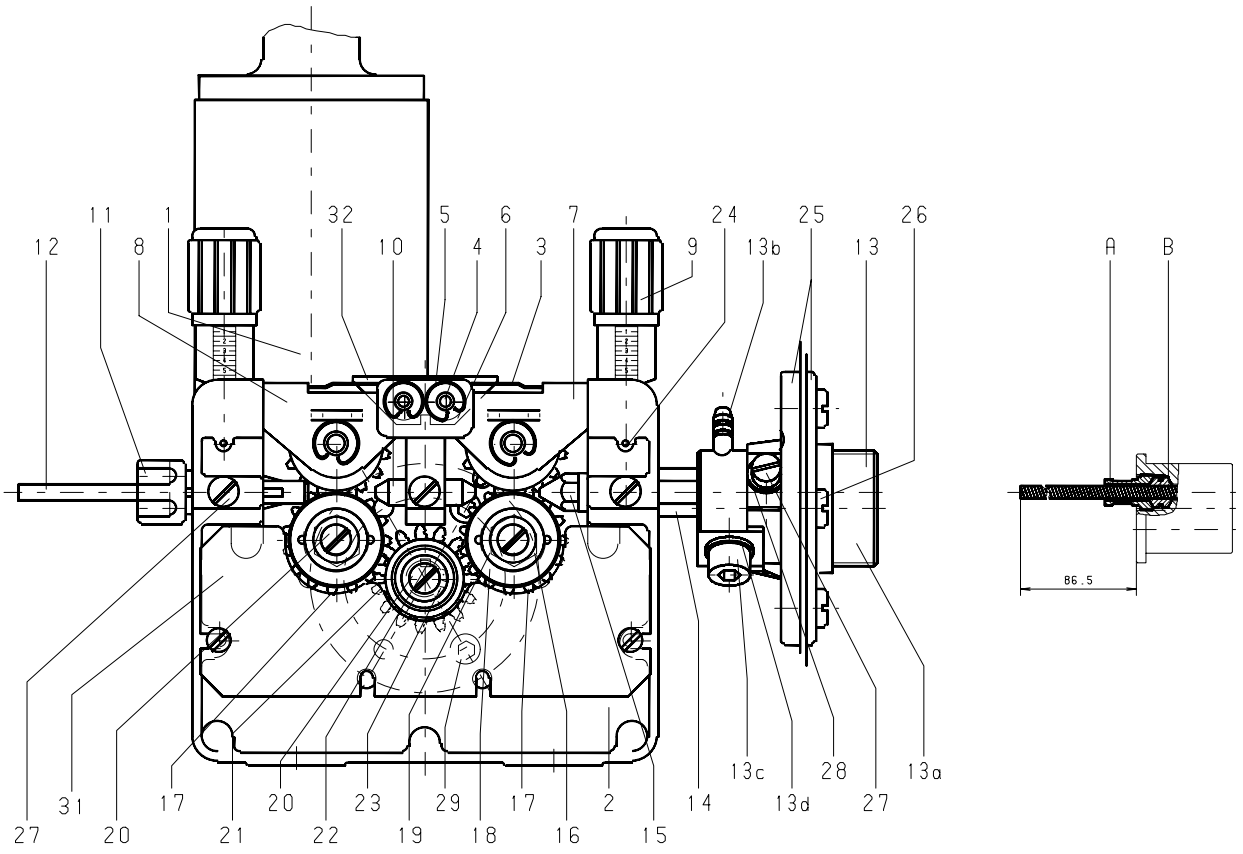
Aluminiumausrüstung
Aluminium equipment
Equipement d´aluminium

S499

Ersatzteilliste Aluminiumausrüstung für 2+2-Rollenantrieb mit Zentralanschluß /
Spare parts list aluminium equipment for 2+2 roller drive with central connection /
Liste des pièces de rechange pour équipement aluminium pour système à 4 galets, avec raccord central

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	043 46 10 30	Alu-Ausrüstung kpl. 3.0 m für Draht Ø 1.0 und Ø 1.2 / aluminium equipment compl. 3.0 m for wire Ø 1.0 and Ø 1.2 / équipement d'aluminium cpl. 3.0 m pour fil Ø 1.0 et Ø 1.2
	043 46 10 40	Alu-Ausrüstung kpl. 4.0 m für Draht Ø 1.0 und Ø 1.2 / aluminium equipment compl. 4.0 m for wire Ø 1.0 and Ø 1.2 / équipement d'aluminium cpl. 4.0 m pour fil Ø 1.0 et Ø 1.2
	043 46 16 30	Alu-Ausrüstung kpl. 3.0 m für Draht Ø 1.6 / aluminium equipment compl. 3.0 m for wire Ø 1.6 / équipement d'aluminium cpl. 3.0 m pour fil Ø 1.6
	043 46 16 40	Alu-Ausrüstung kpl. 4.0 m für Draht Ø 1.6 / aluminium equipment compl. 4.0 m for wire Ø 1.6 / équipement d'aluminium cpl. 4.0 m pour fil Ø 1.6
10	043 46 00 14	Drahtführungsstück für Draht Ø 0.8 - Ø 2.0 / wire guide piece for wire Ø 0.8 - Ø 2.0 / pièce guide-fil pour fil Ø 0.8 - Ø 2.0
	043 46 00 15	dto. Ø 2.4 - Ø 3.2 / dto. Ø 2.4 - Ø 3.2 / dto. Ø 2.4 - Ø 3.2
12		Von dem Drahtführungsschlauch der Pistole werden ca.70 mm eingesetzt. Klemmung durch Konus. / approx. 70 mm of the wire guide hose of the torch are used / clamping by cone / environ 70 mm du tuyau guide-fil de la torche sont utilisés / serrage par cône
15	043 45 00 02	Führungsdüse für Drahtführungsschlauch Ø 4.0 / guide nozzle for wire guide hose outer dia. 4.0 / buse de guidage pour tuyau guide-fil, dia. extérieur 4.0
	043 45 00 03	dto. Ø 4.5 / dto. outer dia. 4.5 / dto. dia. extérieur 4.5
	043 45 00 04	dto. Ø 5.0 / dto. outer dia. 5.0 / dto. dia. extérieur 5.0
	043 45 00 05	dto. Ø 4.7 / dto. outer dia. 4.7 / dto. dia. extérieur 4.7
18	046 03 24 16	Drahtantriebsrolle für Draht Ø 1.0 A, Ø 1.2 A und Ø 1,6 A / wire drive roller for wire Ø 1.0 A, Ø 1.2 A and Ø 1,6 A / galet d'entraînement pour fil Ø 1.0 A, Ø 1.2 A et Ø 1,6 A
		<u>Alternative Drahtantriebsrollen (kalibriert)/Alternatively Wire drive rollers (calibrated) Alternative: galets d'entraînement (calibrés)</u>
	046 03 27 12	Drahtantriebsrolle für Draht Ø 1,0/Ø1,2A/ wire drive roller for Ø 1.0/Ø1.2A / galet d'entraînement pour fil Ø 1,0/Ø1,2A
	046 03 27 16	dto. für Draht Ø 1,6A / dto. for wire Ø 1.6A / dto. pour fil Ø 1.6A
		Integrierte Spiralenklemmung im Anschlußstecker des Pistolen-VSP / spiral clamping integrated in connection piece of torch cable assembly/ serrage de spirale intégré dans la pièce de raccord du faisceau de câbles de la torche
A	604 02 22 00	Spannschraube / clamping screw / vis de serrage
B	604 02 23 00	Spanneinsatz für Spirale Ø 4.0-4.9 / clamping device for spiral outer dia. 4.0-4.9 / dispositif de fixation pour spirale dia. extérieur 4.0-4.9

Schnittzeichnung 4 Rollenantrieb mit Zentralanschluß /
Sectional Crawing: 4 roller system with central connection /
Vue partielle: Système d´entraînement de fil à 4 galets avec raccord central



Drahtantrieb kpl. Wire drive compl. Entraînement de fil compl.	Bestell-Nr. 043 47 00 00 Order-Nr. 043 47 00 00 Réference 043 47 00 00	**S500**

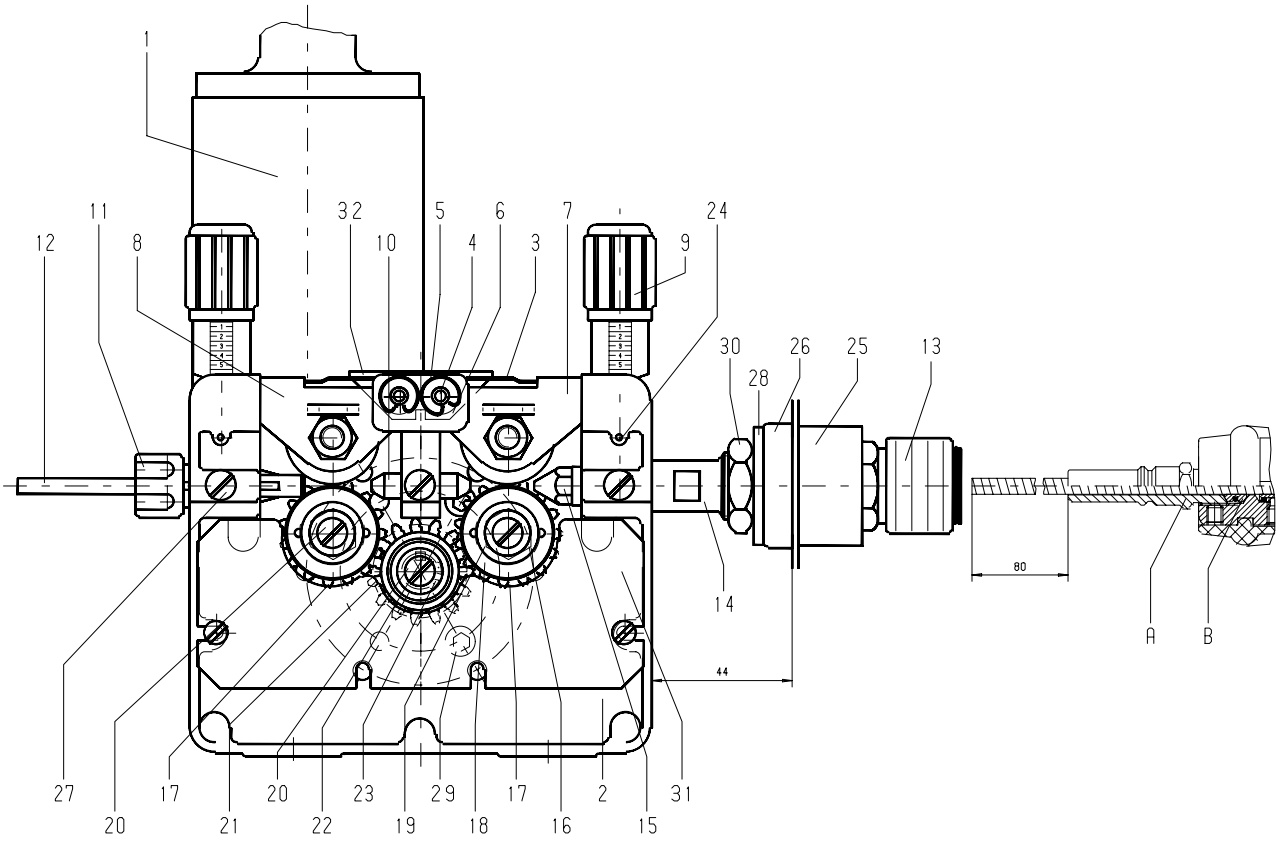
Ersatzteilliste 4-Rollenantrieb kpl. mit Zentralanschluß für Stahldraht und Röhrchendraht /
Spare parts list for 4 roller system compl. with central connection for steel and flux cored wire /
Liste des pièces de rechange pour système à 4 galets cpl. avec raccord central pour fil acier et fil fourré

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	043 47 00 00	Drahtantrieb kpl. ohne Motor / wire drive compl. without motor / entraînement de fil cpl. sans moteur
1		Motor ohne Scheibenfeder und Sicherungsring / motor without curved washer and Seeger ring / moteur sans rondelle élastique bombée et bague Seeger
2	043 46 00 01	Grundplatte / base plate / plaque de base
3	043 46 00 02	Feder für Druckrollenbügel / spring f. pressure roller clip / ressort p. coque contre-galet
4	043 46 00 03	Paßstift für Druckrollenbügel / set pin for pressure roller clip / goujon pour coque contre-galet
5	043 46 00 04	Sicherungsring für Druckrollenbügel / Seeger ring for pressure roller clip / bague Seeger pour coque contre-galet
6	043 46 00 05	Distanzbuchse lang/ long distance bush / douille d'écartement longue
	043 46 00 17	Distanzbuchse kurz (in Verbindung mit Pos. 31)/ short distance bush (in connection with item 31) / douille d'écartement courte (avec la pos. 31)
7	043 47 01 50	Druckrollenbügel rechts kpl. besteht aus: / pressure roller clip right, compl., composed of: / coque contre-galet, droite, cpl., se composant de:
	043 46 01 01	Druckrollenbügel / pressure roller clip / coque contre-galet
	043 46 01 02	Aufnahmebolzen / mounting bolt / boulon de montage
	043 47 01 02	Sicherungsring / Seeger ring / bague Seeger
	043 47 01 03	Gegendruckrolle / counter pressure roller / rouleau de contre pression
	043 46 00 14	Zahnrad für Gegendruckrolle / toothed wheel for counter pressure roller / roue dentée pour rouleau de contre pression
8	043 47 02 50	Druckrollenbügel links kpl. besteht aus - siehe Pos. 7 / pressure roller clip left, compl., composed of - see item 7 / coque contre-galet gauche cpl., se composant de - voir pos. 7
9	043 44 00 19	Druckeinheit kpl. / pressure unit compl. / unité de pression cpl.
10	043 46 00 06	Drahtführungsstück kpl. für Draht Ø 0.8-1.6 / wire guide piece compl. for wire Ø 0.8-1.6 / pièce guide-fil pour fil Ø 0.8-1.6
	043 46 00 07	dto. für Draht Ø 1.6-3.2 / dto. for wire Ø 1.6-3.2 / dto. pour fil Ø 1.6-3.2
11	043 44 00 04	Drahteinlaufstück für Draht Ø 0.8-3.2 / wire inlet piece for wire Ø 0.8-3.2 / pièce d'entrée fil pour fil Ø 0.8-3.2
12	043 44 00 14	Drahtführungsspirale für Draht Ø 0.8-1.6 / wire guide spiral for wire Ø 0.8-1.6 / spirale guide-fil pour fil Ø 0.8-1.6 Von der jeweiligen Spirale der Pistole werden ca. 70 mm eingesetzt. Klemmung durch Konus in Pos.11 / approx. 70 mm of the torch spiral are used, clamping by cone in item 11 / environ 70 mm de la spirale de la torche sont utilisés, serrage par cône sur pos. 11
13	604 04 06 00	Zentralanschluß kpl. besteht aus / central connection compl., composed of: / raccord central cpl., se composant de:
13a	604 04 06 01	Zentralanschluß / central connection / raccord central
13b	604 04 06 02	Gasanschlußnippel / gas connection nipple / nipple de raccordement gaz
13c	102 20 80 10	Zylinderschraube M8x10 / cylinder screw M8x10 / vis cylidrique M8x10
13d	100 70 80 00	U-Scheibe A8.4 / washer A8.4 / rondelle A8.4
14	043 46 00 11	Verbindungsstück / connection piece / pièce de raccordement
15	043 45 00 08	Drahteinlaufdüse für Draht Ø 0.8 / wire inlet nozzle for wire Ø 0.8 / tuyère d'entrée fil pour fil Ø 0.8
	043 45 00 10	dto. für Draht Ø 1.0 / dto. for wire Ø 1.0 / dto. pour fil Ø 1.0
	043 45 00 12	dto. für Draht Ø 1.2 / dto. for wire Ø 1.2 / dto. pour fil Ø 1.2
	043 45 00 14	dto. für Draht Ø 1.4 / dto. for wire Ø 1.4 / dto. pour fil Ø 1.4
	043 45 00 16	dto. für Draht Ø 1.6 / dto. for wire Ø 1.6 / dto. pour fil Ø 1.6

Ersatzteilliste 4-Rollenantrieb kpl. mit Zentralanschluß für Stahldraht und Röhrchendraht / Spare parts list for 4 roller system compl. with central connection for steel and flux cored wire / Liste des pièces de rechange pour système à 4 galets cpl. avec raccord central pour fil acier et fil fourré

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	043 45 00 20	dto. für Draht Ø 2.0 / dto. for wire Ø 2.0 / dto. pour fil Ø 2.0
	043 45 00 24	dto. für Draht Ø 2.4 / dto. for wire Ø 2.4 / dto. pour fil Ø 2.4
	043 45 00 28	dto. für Draht Ø 2.8 / dto. for wire Ø 2.8 / dto. pour fil Ø 2.8
	043 45 00 32	dto. für Draht Ø 3.2 / dto. for wire Ø 3.2 / dto. pour fil Ø 3.2
16	043 46 00 08	Aufnahmebolzen für Zahnrad und Antriebsrolle / mounting bolt for toothed wheel and drive roller / boulon de montage pour roue dentée et galet d'entraînement
17	043 46 00 12	Zahnrad für Antriebsrolle / toothed wheel for drive roller / roue dentée pour galet d'entraînement
18	046 03 20 10	Drahtantriebsrolle für Draht Ø 0.8+1.0 / wire drive roller for wire Ø 0.8+1.0 / galet d'entraînement de fil pour fil Ø 0.8+1.0
	046 03 20 12	dto. für Draht Ø 1.0+1.2 / dto. for wire Ø 1.0+1.2 / dto. pour fil Ø 1.0+1.2
	046 03 20 14	dto. für Draht Ø 1.4+1.6 / dto. for wire Ø 1.4+1.6 / dto. pour fil Ø 1.4+1.6
	046 03 20 16	dto. für Draht Ø 1.2+1.6 / dto. for wire Ø 1.2+1.6 / dto. pour fil Ø 1.2+1.6
		Alternativ Antriebsrollen (kalibriert) / Alterntively Wire drive rollers (calibrated)/ Alternative: galets d'entraînement (calibrés)
	046 03 26 09	Antriebsrolle für Draht Ø0,9/ wire drive roller for Ø 0.9 / galet d'entaînement pour fil Ø 0.9
	046 03 26 10	dto. für Draht Ø1,0/ dto. for wire Ø 1.0 / dto. pour fil Ø 1.0
	046 03 26 12	dto. für Draht Ø1,2/ dto. for wire Ø 1.2 / dto. pour fil Ø 1.2
	046 03 26 13	dto. für Draht Ø1,32/ dto. for wire Ø 1.0 / dto. pour fil Ø 1.0
	046 03 26 16	dto. für Draht Ø1,6/ dto. for wire Ø 1.6 / dto. pour fil Ø 1.6
		Röhrchendraht-Antriebsrollen (gerändelt)/ flux cored wire drive rollers (knurled) / galets d'entraînement (moleté) pour fil fourré
	046 03 22 16	Antriebsrolle für Draht Ø1,0/1,2R+1,4/1,6R / wire drive roller for wire Ø1,0/1,2R+1,4/1,6R / galet d'entraînement p. fil Ø1,0/1,2R+1,4/1,6R
	046 03 22 24	Antriebsrolle für Draht Ø1,4/1,6R+2,0/2,4R / wire drive roller for wire Ø1,4/1,6R+2,0/2,4R / galet d'entraînement pour fil Ø1,4/1,6R+2,0/2,4R
	046 03 22 32	Antriebsrolle für Draht Ø2,8/3,2R / wire drive roller for wire Ø2,8/3,2R / galet d'entraînement pour fil Ø2,8/3,2R
19	043 46 00 09	U-Scheibe / washer / rondelle
20	043 44 00 15	Halteschraube mit Bund M4x6 / fixing screw with collar M4x6 / vis de fixation avec collet M4x6
21	043 46 00 13	Zahnrad auf Motorwelle / toothed wheel on motor shaft / roue dentée sur l'arbre du moteur
22	043 17 00 06	Scheibenfeder auf Motorwelle / spring on motor shaft / ressort sur l'arbre du moteur
23	101 40 00 10	Sicherungsring auf Motorwelle / Seeger ring on motor shaft / bague Seeger sur l'arbre du moteur
24	043 44 00 18	Paßstift Druckeinheit / set pin pressure unit / / goujon unité de pression
25	043 44 00 05	Plastikgehäuse mit Scheibe / plastic housing with washer / embase en plastique avec rondelle
26	104 81 06 16	Linsenkopfschraube M6x16 / oval head screw M6x16 / vis à tête bombée M6x16
27	100 20 60 12	Zylinderschraube M6x12 / cylinder screw M6x12 / vis cylindrique M6x12
28	100 70 60 00	U-Scheibe A6.4 / washer A6.4 / rondelle A6.4
29	103 80 60 15	Zylinderschraube M6x15 / cylinder screw M6x15 / vis cylindrique M6x15
		Integrierte Spiralenklemmung im Anschlußstück des VSP / spiral clamping integrated in connection piece of cable assembly / serrage de spirale intégré dans la pièce de raccordement du faisceau de câbles
31	043 46 03 00	Abdeckung kpl./ cover compl. / couvercle cpl.
32	043 46 00 16	Anschlag - Druckrollenbügel/ stop - pressure roller clip / butée - levier de pression
A	604 02 22 00	Spannschraube / clamping screw / vis de serrage
B	604 02 23 00	Spanneinsatz für Spirale aØ 4.0-4.9 / fastening device for spiral, outer Ø 4.0-4.9 / dispositif de fixation pour spirale, dia. extérieur 4.0-4.9

Schnittzeichnung 2 + 2 - Drahtantrieb mit Steckanschluß /
Sectional drawing: 2 + 2 roller system with plug-connection /
Vue partielle: Système à 2+2 galets avec raccord enfichable



Drahtantrieb kpl.
Wire drive compl.
Entraînement de fil compl.

S507

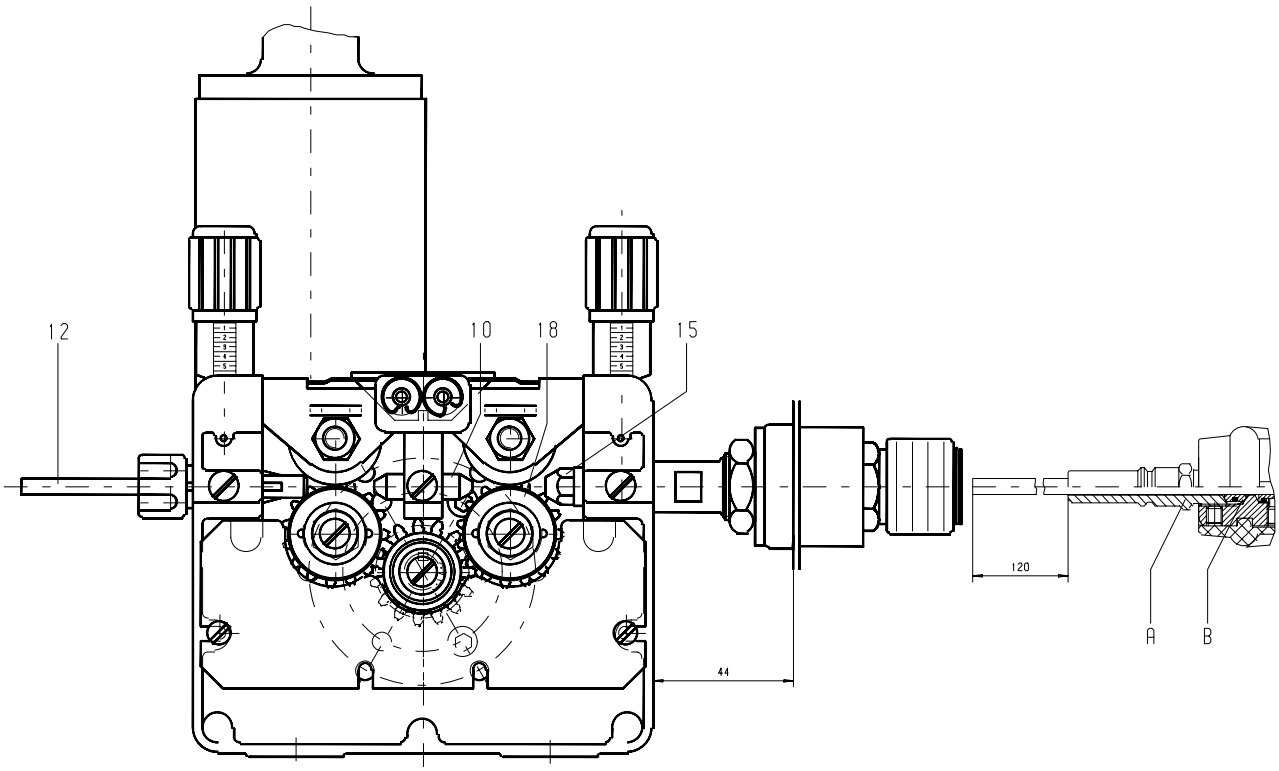
Ersatzteilliste 2+2-Rollenantrieb kpl. mit Steckanschluß SKQ für Stahldraht und Röhrchendraht /
Spare parts list 2 + 2 roller system compl. with plug-connection SKQ for steel and flux cored wire /
Liste des pièces de rechange pour système à 2+2 galets cpl. avec raccord enfichable SKQ pour fil acier et fil fourré

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	043 51 00 00	Drahtantrieb kpl. ohne Motor / wire drive compl. without motor / entraînement de fil cpl. sans moteur
1		Motor ohne Scheibenfeder und Sicherungsring / motor without curved washer and Seeger ring / moteur sans rondelle élastique bombée et bague Seeger
2	043 46 00 01	Grundplatte / base plate / plaque de base
3	043 46 00 02	Feder für Druckrollenbügel / spring for pressure roller clip / ressort pour coque contre-galet
4	043 46 00 03	Paßstift für Druckrollenbügel / set pin for pressure roller clip / goujon pour coque contre-galet
5	043 46 00 04	Sicherungsring für Druckrollenbügel / Seeger ring for pressure roller clip / bague Seeger pour coque contre-galet
6	043 46 00 05	Distanzbuchse / distance bush / douille d'écartement
7	043 46 01 00	Druckrollenbügel rechts kpl. besteht aus / pressure roller clip, right, compl., composed of: / coque contre-galet, droite, cpl., se composant de:
	043 46 01 01	Druckrollenbügel / pressure roller clip / coque contre-galet
	043 46 01 02	Aufnahmebolzen / mounting bolt / boulon de montage
	043 46 01 03	Abstandsbuchsen / distance bush / douille d'écartement
	043 46 01 04	Gegendruckrolle / counter pressure roller / rouleau de contre pression
	043 46 01 05	Mutter M8 / nut M8 / écrou M8
8	043 46 02 00	Druckrollenbügel links kpl. besteht aus - siehe Pos. 7 / pressure roller clip, left, compl. composed of - see item 7 / coque contre-galet gauche cpl., se composant de - voir pos. 7
9	043 44 00 19	Druckeinheit kpl. / pressure unit compl. / unité de pression cpl.
10	043 46 00 06	Drahtführungsstück kpl. für Draht Ø 0.8-1.6 / wire guide piece compl. for wire Ø 0.8 - 1.6 / pièce guide-fil cpl. pour fil Ø 0.8 - 1.6
	043 46 00 07	dto. für Draht Ø 1.6-3.2 / dto. for wire Ø 1.6 - 3.2 / dto. pour fil Ø 1.6 - 3.2
11	043 44 00 04	Drahteinlaufstück für Draht Ø 0.8-3.2 / wire inlet piece for wire Ø 0.8 - 3.2 / pièce d'entrée fil pour fil Ø 0.8 - 3.2
12	043 44 00 14	Drahtführungsspirale für Draht Ø 0.8-1.6 / wire guide spiral for wire Ø 0.8-1.6 / spirale guide-fil pour fil Ø 0.8 - 1.6 Von der jeweiligen Spirale der Pistole werden ca. 70 mm eingesetzt. Klemmung durch Konus in Pos.11 / approx. 70 mm of the relevant spiral of the torch are used. Clamping by cone in item 11 / environ 70 mm de la spirale correspondante de la torche sont utilisés. Serrage par cône dans pos. 11
13	032 03 00 46	Steckkupplung NW 7.2, rot / plug-type coupling NW 7,2 red / accouplement enfichable NW 7,2 rouge
14	043 51 00 01	Verbindungsstück R1/2" / connection piece R1/2" / pièce de raccordement R1/2"
15	043 45 00 08	Drahteinlaufdüse für Draht Ø 0.8 / wire inlet nozzle for wire Ø 0.8 / tuyère d'entrée fil pour fil Ø 0.8
	043 45 00 10	dto. für Draht Ø 1.0 / dto. for wire Ø 1.0 / dto. pour fil Ø 1.0
	043 45 00 12	dto. für Draht Ø 1.2 / dto. for wire Ø 1.2 / dto. pour fil Ø 1.2
	043 45 00 14	dto. für Draht Ø 1.4 / dto. for wire Ø 1.4 / dto. pour fil Ø 1.4
	043 45 00 16	dto. für Draht Ø 1.6 / dto. for wire Ø 1.6 / dto. pour fil Ø 1.6
	043 45 00 20	dto. für Draht Ø 2.0 / dto. for wire Ø 2.0 / dto. pour fil Ø 2.0
	043 45 00 24	dto. für Draht Ø 2.4 / dto. for wire Ø 2.4 / dto. pour fil Ø 2.4
	043 45 00 28	dto. für Draht Ø 2.8 / dto. for wire Ø 2.8 / dto. pour fil Ø 2.8
	043 45 00 32	dto. für Draht Ø 3.2 / dto. for wire Ø 3.2 / dto. pour fil Ø 3.2

Ersatzteilliste 2+2-Rollenantrieb kpl. mit Steckanschluß SKQ für Stahldraht und Röhrchendraht /
Spare parts list 2 + 2 roller system compl. with plug-connection SKQ for steel and flux cored wire /
Liste des pièces de rechange pour système à 2+2 galets cpl. avec raccord enfichable SKQ pour fil acier et fil fourré

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
16	043 46 00 08	Aufnahmebolzen für Zahnrad und Antriebsrolle / mounting bolt for toothed wheel and drive roller / boulon de fixation pour roue dentée et galet d'entraînement
17	043 46 01 12	Zahnrad für Motor für 2+2/4-Rollenantrieb / gear wheel for motor for 2+2/4 roller system / roue dentée pour moteur pour système à 2+2/4 galets
18	046 03 20 10	Drahtantriebsrolle für Draht Ø 0.8+1.0 / wire drive roller for wire Ø 0.8+1.0 / galet d'entraînement pour fil Ø 0.8+1.0
	046 03 20 12	dto. für Draht Ø 1.0+1.2 / dto. for wire Ø 1.0+1.2 / dto. pour fil Ø 1.0+1.2
	046 03 20 14	dto. für Draht Ø 1.4+1.6 / dto. for wire Ø 1.4+1.6 / dto. pour fil Ø 1.4+1.6
	046 03 20 16	dto. für Draht Ø 1.2+1.6 / dto. for wire Ø 1.2+1.6 / dto. pour fil Ø 1.2+1.6
		bei Draht Ø 1.4/2.0/2.4/2.8 und 3.2 siehe bei Röhrchendraht-Antriebsrollen / for wire Ø 1.4/2.0/2.4/2.8 and 3.2 see drive rollers for flux cored wire / pour fil Ø 1.4/2.0/2.4/2.2 et 3.2 voir galets d'entraînement pour fil fourré
		Alternativ Antriebsrollen (kalibriert)/ Alternatively Wire drive rollers (calibrated) Alternative: galets d'entraînement (calibrés)
	046 03 26 09	Antriebsrolle für Draht Ø 0,9/ wire drive roller for wire Ø 0.9 / galet d'entraînement pour fil Ø 0.9
	046 03 26 10	dto. für Draht Ø 1,0/ dto. for wire Ø 1.0 / dto. pour fil Ø 1.0
	046 03 26 12	dto. für Draht Ø 1,2/ dto. for wire Ø 1.2 / dto. pour fil Ø 1.2
	046 03 26 13	dto. für Draht Ø 1,32/ dto. for wire Ø 1.32 / dto. pour fil Ø 1.32
	046 03 26 16	dto. für Draht Ø 1,6/ dto. for wire Ø 1.6 / dto. pour fil Ø 1.6
		Röhrchendraht-Antriebsrollen (gerändelt)/ flux cored wire drive rollers (knurled) / galets d'entraînement (moleté) pour fil fourré
	146 03 22 16	Antriebsrolle für Draht Ø1,0/1,2R+Ø1,4/1,6R/ wire drive roller for wire Ø1,0/1,2R+Ø1,4/1,6R / galet d'entraînement pour fil Ø1,0/1,2R+Ø1,4/1,6R
	146 03 22 24	dto. für Draht Ø1,4/1,6R+Ø2,0/2,4R/ dto. for wire Ø1,4/1,6R+Ø2,0/2,4R / dto. pour fil Ø1,4/1,6R+Ø2,0/2,4R
	146 03 22 32	Antriebsrolle für Draht Ø2,8/3,2R / wire drive roller for wire Ø2,8/3,2R / galet d'entraînement pour fil Ø2,8/3,2R
19	043 46 00 09	U-Scheibe / washer / rondelle
20	043 44 00 15	Halteschraube mit Bund M4x6 / fixing screw with collar M4x6 / vis de fixation avec collet M4x6
21	043 46 01 13	Zahnradaufnehmer kpl. für 2+2/4-Rollenantrieb / gear wheel support compl. for 2+2/4-roller drive / support roue dentée cpl. pour système à 2+2/4 galets
22	043 17 00 06	Scheibenfeder auf Motorwelle / spring on motor shaft / ressort sur l'arbre du moteur
23	101 40 00 10	Sicherungsring auf Motorwelle / Seeger ring on motor shaft / bague Seeger sur l'arbre du moteur
24	043 44 00 18	Paßstift Druckeinheit / set pin pressure unit / goujon unité de pression
25	073 03 22 00	Isolierhülse SE 70/95 ISO / insulation bush SE 70/95 ISO/ douille isolante SE 70/95 ISO
26	073 03 15 00	Druckring für 50/70, hinten / pressure ring for 50/70, rear / bague de pression pour 50/70
27	100 20 60 12	Zylinderschraube M6x12 / cylinder screw M6x12 / vis cylindrique M6x12
28	100 72 10 00	U-Scheibe A21 / washer A21 / rondelle A 21
29	103 80 60 15	Zylinderschraube M6x15 / cylinder screw M6x15 / vis cylindrique M6x15
30	060 02 00 02	Sechskantmutter R 1/2" / hexagon nut R 1/2" / écrou hexagonal R 1/2"
		Integrierte Spiralenklemmung im Anschlußstecker des VSP / spiral clamping integrated in connection piece of cable assembly / serrage de spirale intégré dans la pièce de raccordement du faisceau de câbles
31	043 46 03 00	Abdeckung kpl. / cover compl. / couvercle cpl.
32	043 46 00 16	Anschlag Druckrollenbügel / stop - pressure roller clip / butée - levier de pression
A	066 01 47 01	Stecknippel Typ 26 / plug-in nipple type 26 / nipple enfichable type 26
B	604 02 23 00	Spanneinsatz für Spirale a Ø 4.0-4.9 / fastening device for spiral, outer Ø 4.0 - 4.9 / dispositif de fixation pour spirale, dia. extérieur 4.0-4.9

Schnittzeichnung 2 + 2 - Drahtantrieb Aluminiumausrüstung /



Aluminiumausrüstung
Aluminium equipment
Equipement d´aluminium

S508

Ersatzteilliste Aluminiumausrüstung für 2+2-Rollenantrieb mit Steckanschluß /
Spare parts list aluminium equipment for 2+2 roller system with plug-connection /
Liste des pièces de rechange pour équipement d'aluminium pour système à 2+2 galets, avec raccord enfichable

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	043 46 10 30	Alu-Ausrüstung kpl. 3.0 m für Draht Ø 1.0 und Ø 1.2 / aluminium equipment compl. 3.0 m for wire Ø 1.0 and Ø 1.2 / équipement d'aluminium cpl. 3.0 m pour fil Ø 1.0 et Ø 1.2
	043 46 10 40	Alu-Ausrüstung kpl. 4.0 m für Draht Ø 1.0 und Ø 1.2 / aluminium equipment compl. 4.0 m for wire Ø 1.0 and Ø 1.2 / équipement d'aluminium cpl. 4.0 m pour fil Ø 1.0 et Ø 1.2
	043 46 16 30	Alu-Ausrüstung kpl. 3.0 m für Draht Ø 1.6 / aluminium equipment compl. 3.0 m for wire Ø 1.6 / équipement d'aluminium cpl. 3.0 m pour fil Ø 1.6
	043 46 16 40	Alu-Ausrüstung kpl. 4.0 m für Draht Ø 1.6 / aluminium equipment compl. 4.0 m for wire Ø 1.6 / équipement d'aluminium cpl. 4.0 m pour fil Ø 1.6
10	043 46 00 14	Drahtführungsstück für Draht Ø 0.8 - Ø 2.0 / wire guide piece for wire Ø 0.8 - Ø 2.0 / pièce guide-fil pour fil Ø 0.8 - Ø 2.0
	043 46 00 15	dto. Ø 2.4 - Ø 3.2 / dto. Ø 2.4 - Ø 3.2 / dto. Ø 2.4 - Ø 3.2
12		Von dem Drahtführungsschlauch der Pistole werden ca.70 mm eingesetzt. Klemmung durch Konus. / approx. 70 mm of the wire guide hose of the torch are used / clamping by cone / environ 70 mm du tuyau guide-fil de la torche sont utilisés / serrage par cône
15	043 45 00 02	Führungsdüse für Drahtführungsschlauch Ø 4.0 / guide nozzle for wire guide hose outer dia. 4.0 / buse de guidage pour tuyau guide-fil, dia. extérieur 4.0
	043 45 00 03	dto. Ø 4.5 / dto. outer dia. 4.5 / dto. dia. extérieur 4.5
	043 45 00 04	dto. Ø 5.0 / dto. outer dia. 5.0 / dto. dia. extérieur 5.0
	043 45 00 05	dto. Ø 4.7 / dto. outer dia. 4.7 / dto. dia. extérieur 4.7
18	046 03 24 16	Drahtantriebsrolle für Draht Ø 1.0 A, Ø 1.2 A und Ø 1,6 A / wire drive roller for wire Ø 1.0 A, Ø 1.2 A and Ø 1,6 A / galet d'entraînement pour fil Ø 1.0 A, Ø 1.2 A et Ø 1,6 A Alternative Drahtantriebsrollen (kalibriert)/ Alternatively Wire drive rollers (calibrated) Alternative: galets d'entraînement (calibrés)
	046 03 27 12	Drahtantriebsrolle für Draht Ø 1,0/Ø1,2A/ wire drive roller for wire Ø 1,0/Ø1,2A / galet d'entraînement pour fil Ø 1,0/Ø1,2A
	046 03 27 16	dto. für Draht Ø 1,6A/ dto. for wire Ø 1.6A / dto. pour fil Ø 1.6A
		Integrierte Spiralenklemmung im Anschlußstecker des Pistolen-VSP / spiral clamping integrated in connection piece of torch cable assembly/ serrage de spirale intégré dans la pièce de raccord du faisceau de câbles de la torche
A	066 01 47 01	Stecknippel Typ 26 / plug-in nipple type 26 / nipple enfichable type 26
B	604 02 23 00	Spanneinsatz für Spirale Ø 4.0-4.9 / clamping device for spiral outer dia. 4.0-4.9 / dispositif de fixation pour spirale dia. extérieur 4.0-4.9

HD - Antrieb

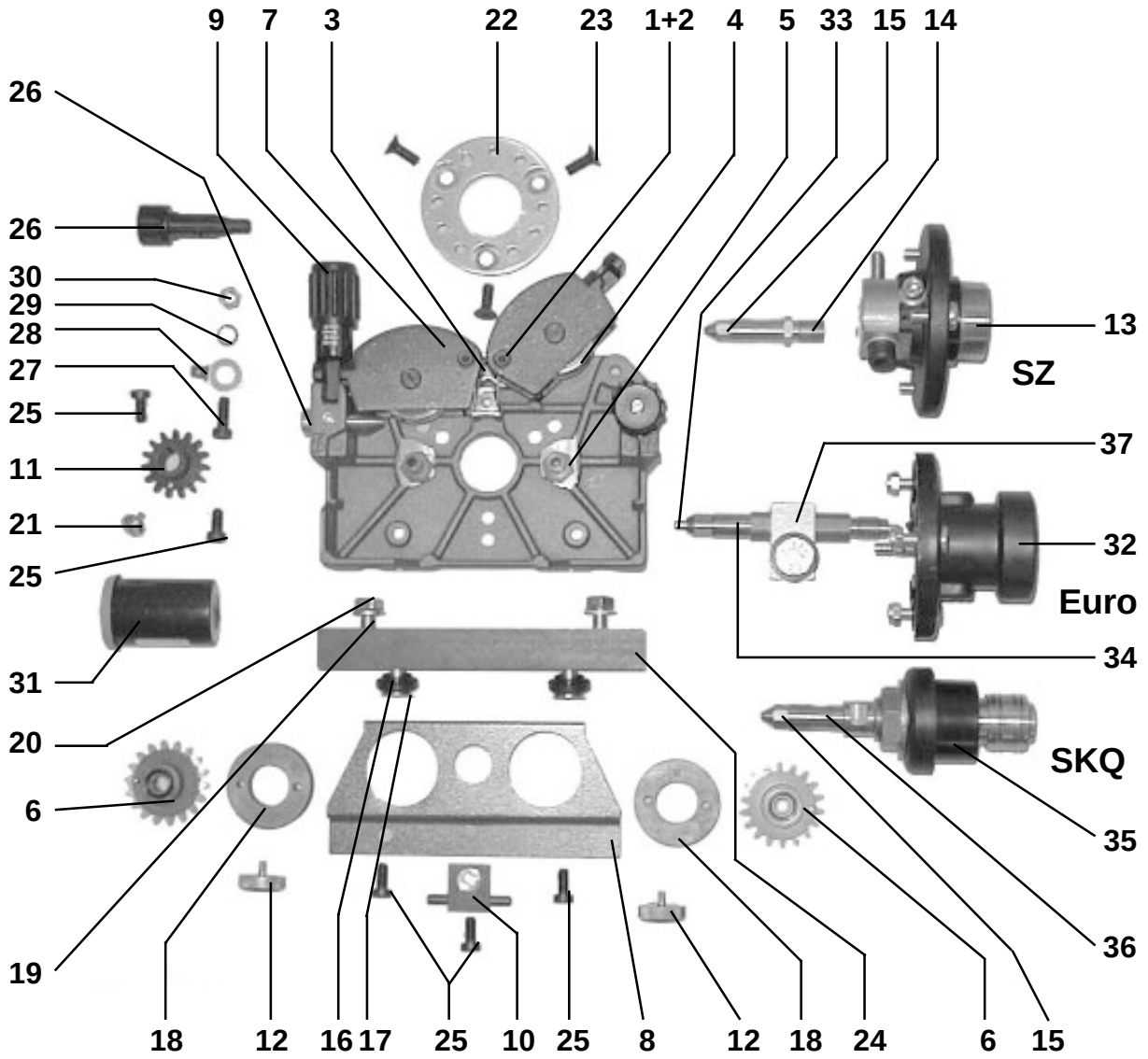
mit SZ- oder Euro- oder SKQ-Anschluß

HD Drive

with SZ or Euro or SKQ connection

Entraînement HD

avec raccord SZ ou Euro ou SKQ



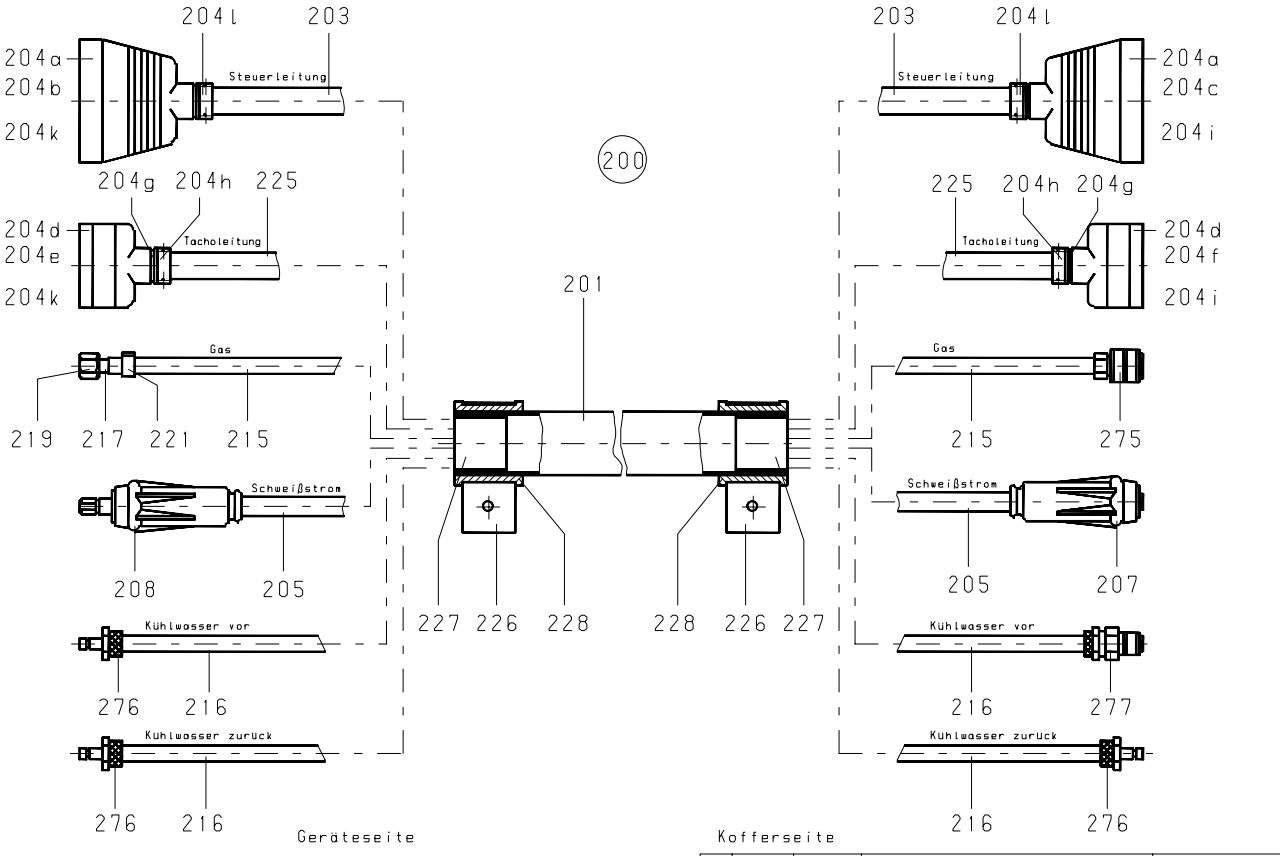
Ersatzteilliste für HD-Antrieb / Spare parts list for HD drive /
Liste des pièces de rechange pour entraînement HD

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
1	043 52 00 02	Aufnahmebolzen für Druckrollenbügel/ mounting bolt for pressure roller clip/ boulon de positionnement pour coque contre-galet
2	043 52 01 02	Linsenschraube mit Bund /oval head screw with collar / vis à tête bombée avec embase
3	043 52 01 06	Spannfeder rechts / tension spring right / ressort de tension droite
	043 52 02 06	Spannfeder links / tension spring left / ressort de tension gauche
4	082 02 02 26	Gegendruckrolle / counterpressure roller / rouleau à contre-pression
5	043 52 00 04	Aufnahmebolzen für Zahnrad / locating bolt for gear wheel / boulon de positionnement pour roue dentée
6	043 52 00 05	Zahnrad kpl./ gear wheel compl. / roue dentée cpl.
7	043 52 01 00	Druckrollenbügel rechts kpl./pressure roller clip, right, compl. / coque contre-galet droite cpl.
	043 52 02 00	Druckrollenbügel links kpl./ pressure roller clip, left, compl. / coque contre-galet gauche cpl.
8	043 52 00 11	Abdeckblech / cover plate / plaque de recouvrement
9	043 52 03 00	Druckeinheit kpl./pressure unit compl./ unité de pression cpl.
10	043 52 00 13	Drahtführung für Draht ø0,8-1,2 / wire guide for wire diameter 0.8-1.2 / guide-fil pour fil diamètre 0,8-1,2
	043 52 00 14	Drahtführung für Draht ø1,6-2,0 / wire guide for wire diameter 0.6-2.0 / guide-fil pour fil diamètre 0,6-2,0
11	043 52 00 06	Zahnrad für Motorwelle / gear wheel for motor shaft / roue dentée pour l'arbre du moteur
12	043 52 00 07	Befestigungsschraube Rolle / fastening screw for roller / vis de fixation pour galet
13	043 52 04 00	SZ-Anschluß kpl. (inkl. Pos. 14+15)/ SZ connection compl. (incl. items 14 and 15) / raccord SZ cpl. (y compris les positions 14+15)
	604 04 06 50	Grundkörper SZ-Anschluß / basic body SZ connection / corps de base raccord SZ
14	043 45 00 01	Verbindungsstück / connection part / connecteur
15	043 45 00 08	Drahteinlaufdüse für St-Draht ø0,8/ wire inlet nozzle for steel wire dia. 0.8/ buse d'entrée fil pour fil acier diamètre 0,8
	043 45 00 10	dto. für St-Draht/ for steel wire / pour fil acier ø1,0
	043 45 00 12	dto. für St-Draht / for steel wire / pour fil acier ø1,2
	043 45 00 14	dto. für St-Draht / for steel wire / pour fil acier ø1,4
	043 45 00 16	dto. für St-Draht / for steel wire / pour fil acier ø1,6
	043 45 00 20	dto. für St-Draht / for steel wire / pour fil acier ø2,0
	043 45 00 24	dto. für St-Draht / for steel wire / pour fil acier ø2,4
	043 45 00 02	Führungsdüse für Drahtführungsschlauch aø4,0 (Al-Draht)/ guide nozzle for wire guide hose aø4,0 (Aluminium wire)/ buse guide fil pour tuyau guide fil aø4,0 (fil aluminium)
	043 45 00 03	dto. für / for / pour aø4,5 (Al-Draht/aluminium wire / fil aluminium)
	043 45 00 04	dto. für / for / pour aø5,0 (Al-Draht/aluminium wire / fil aluminium)
	043 45 00 05	dto. für / for / pour aø4,7 (Al-Draht/aluminium wire / fil aluminium)
16	049 01 02 69	Isolierbuchse / insulation bush / douille isolante
17	104 12 08 20	Senkschraube M8x20 /countersunk screw M8x20/ vis à tête fraisée M8x20
18	046 03 32 08	Antriebsrolle für St-Draht ø0,8 / drive roller for steel wire dia. 0.8 / galet d'entraînement pour fil acier diamètre 0,8
	046 03 32 09	dto. ø0,9
	046 03 32 10	dto. ø1,0
	046 03 32 12	dto. ø1,2
	046 03 32 13	dto. ø1,14+ø1,32

Ersatzteilliste für HD-Antrieb / Spare parts list for DR drive /
Liste des pièces de rechange pour entraînement HD

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	046 03 32 14	dto. ø1,4
	046 03 32 16	dto. ø1,6
	046 03 32 20	dto. ø2,0
	046 03 32 24	dto. ø2,4
	046 03 33 10	Antriebsrolle für Al-Draht ø1,0 / wire drive roller for aluminium wire dia. 1.0/ galet d'entraînement pour fil aluminium diamètre 1,0
	046 03 33 12	dto. ø1,2
	046 03 33 16	dto. ø1,6
	046 03 34 16	Antriebsrolle für Röhrchendraht ø1,0/1,2 + ø1,4/1,6/ wire drive roller for flux cored wire dia. 1,0/1,2 + ø1,4/1,6/ galet d'entraînement pour fil fourré diamètre 1,0/1,2 + ø1,4/1,6/
	046 03 34 24	dto. ø2,0+2,4
19	100 70 80 00	U-Scheibe A8,4 / washer A8,4 / rondelle A8,4
20	101 80 80 16	Sechskantschraube M8x16/ hexagon screw M8x16/vis hexagonale M8x16
21	043 46 00 19	Halteschraube mit Bund/safety screw with collar / vis de blocage avec embase
22	043 52 00 12	Distanzring / distance ring / bague d'écartement
23	104 12 06 16	Senkschraube M6x16 / countersunk screw M6x16 / vis à tête fraisée
24	049 01 03 60	Isolierstück / insulation piece / pièce isolante
25	103 80 60 12	Zylinderschraube M6x12 / cylinder screw M6x12 / vis à tête cylindrique M6x12
26	043 52 00 08	Drahteinlaufstück für St-Draht ø0,8-1,6 / wire inlet piece for steel wire ø0,8-1,6 / pièce d'entrée fil pour fil acier ø0,8-1,6
	043 44 00 04	dto. für St + Al-Draht ø0,8-3,2 /dito for steel and aluminium wire ø0,8-3,2 / dito pour fil acier et fil aluminium ø0,8-3,2
	048 01 00 15	Anschlußnippel mit Außengewinde R3/8" für St-Draht / connection nipple with external thread R3/8" for steel wire / raccord à filetage mâle R3/8" pour fil acier
	048 01 00 17	dto. für Al-Draht / dito for aluminium wire / dito pour fil acier
27	103 80 60 15	Zylinderschraube M6x16 / cylinder screw M6x16 / vis à tête cylindrique M6x16
28	035 02 05 02	Flachstecker / flat plug / fiche plate
29	103 70 60 00	Fächerscheibe A6,4 / washer A6,4 / rondelle A6,4
30	102 80 60 00	Sechskantmutter M6 / hexagon nut M6 / écrou héxagonal M6
31	000 01 01 48	Hochleistungsfett (3cm³)/ heavy duty grease (3cm³) / graisse à haut rendement (3cm³)
32	604 02 24 00	Euroanschluß kpl. (inkl. Pos. 33+34) / Euro connection compl. (including items 33+34) / raccord Euro cpl. (y compris les positions 33+34)
33	604 02 24 03	Einsatzrohr für St-Draht iø2,0x105 / insertion tube for steel wire inner diameter 2.0x105/ tuyau insertion pour fil acier dia. int. 2,0x105
	604 02 24 04	dto. iø3,0x105 /dito inner diameter 3.0x105/ dito dia. int. 3,0x105
	604 02 24 05	dto.für Al-Draht / for aluminium wire / pour fil aluminium ø2,0x103
34	604 02 24 02	Verbindungsstück kpl. mit Klemmutter und O-Ring / connection piece compl. with tightening nut and O-ring / pièce de raccord cpl. avec écrou de calage et bague O
	604 02 25 06	Klemmutter / tightening nut / écrou de calage
	604 02 25 07	O-Ring / O-ring / bague O
35	043 52 05 00	SKQ-Anschluß kpl. / SKQ connection compl. / raccord SKQ cpl.
36	043 52 05 01	Verbindungsstück / connection piece compl. / piéce de raccord cpl.
37	604 02 26 03	Stromklemme kpl. / current terminal clamp compl. / griffe d'alimentation cpl.

Schnittzeichnung Schlauchpaket für CK 78 /
Sectional Drawing: Cable assembly for CK 78 /
Vue partielle: Faisceau de càbles pour CK 78



S493

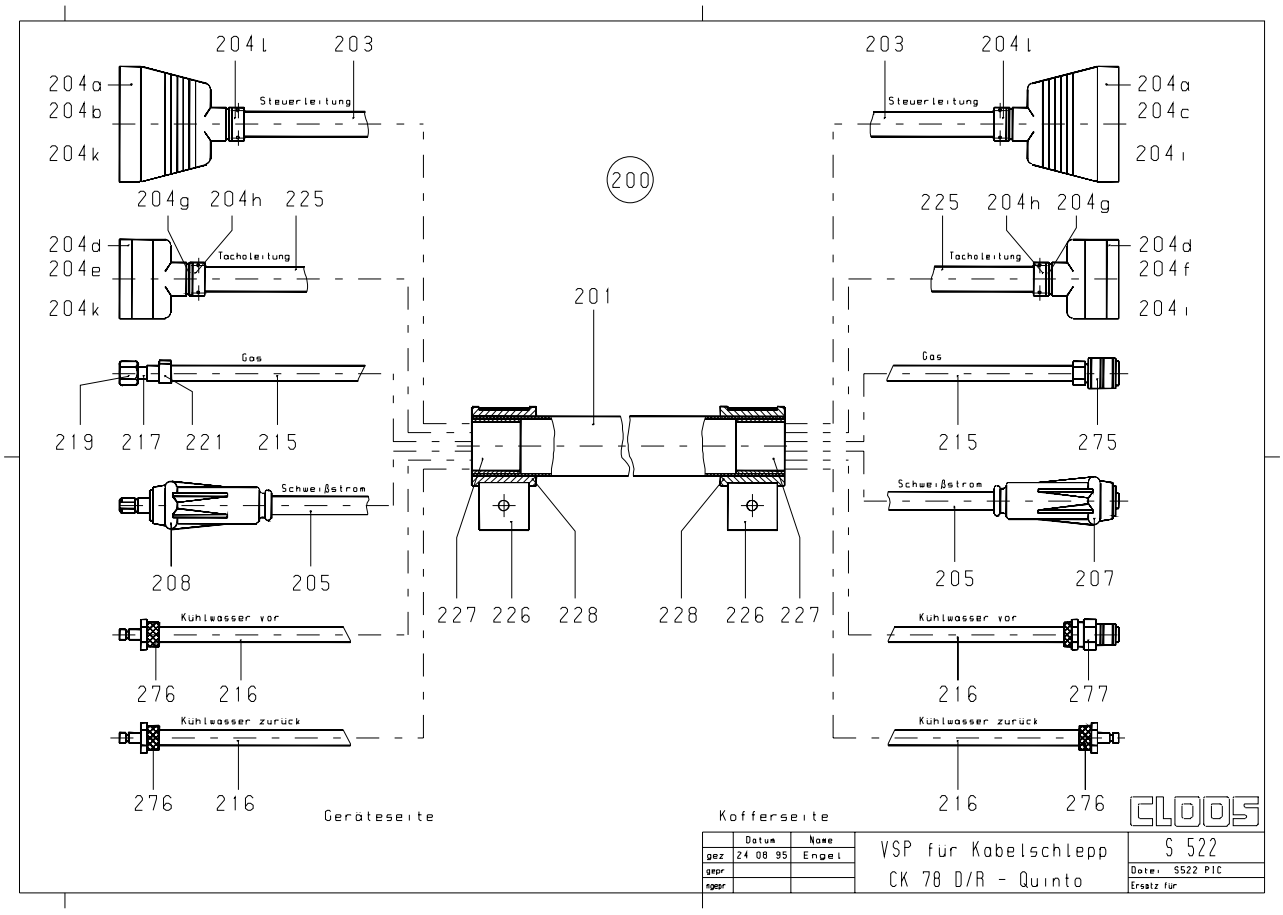
Ersatzteilliste Schlauchpaket für CK 78 - GLC 503 QUINTO Profi / Spare parts list cable assembly for CK 78 - GLC 503 QUINTO Profi / Liste des pièces de rechange faisceau de câbles pour CK 78 - GLC 503 QUINTO Profi

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
200	650 64 00 80	Schlauchpaket wassergekühlt 0,8 m / cable assembly water cooled 0,8 m / faisceau de câbles, refroidi par eau 0,8 m
	650 64 02 00	dto. 5,0 m / dto. 5,0 m / dto. 5,0 m
	650 64 03 00	dto. 10,0 m / dto. 10,0 m / dto. 10,0 m
	650 64 04 00	dto. 15,0 m / dto. 15,0 m / dto. 15,0 m
	650 64 05 00	dto. 20,0 m / dto. 20,0 m / dto. 20,0 m
201	040 06 23 00	Schutzschlauch Ø 50x2, 0,8 m / protective hose Ø 50x2/ 0,8 m / tuyau de protection Ø 50x2 / 0,8 m
		dto. Ø 50x2, 5,0 m / dto. Ø 50x2, 5,0 m / dto. Ø 50x2, 5,0 m
		dto. Ø 50x2, 10,0 m / dto. Ø 50x2, 10,0 m / dto. Ø 50x2, 10,0 m
		dto. Ø 50x2, 15,0 m / dto. Ø 50x2, 15,0 m / dto. Ø 50x2, 15,0 m
		dto. Ø 50x2, 20,0 m / dto. Ø 50x2, 20,0 m / dto. Ø 50x2, 20,0 m
203	038 07 32 00	Steuerleitung 42x1 mm^2, 1,8 m / control lead 42x1mm^2/ 1,8 m / câble commande 42x1 mm^2 / 1,8 m
		dto. 6,0 m / dto. 6,0 m / dto. 6,0 m
		dto. 11,0 m / dto. 11,0 m / dto. 11,0 m
		dto. 16,0 m / dto. 16,0 m / dto. 16,0 m
		dto. 21,0 m / dto. 21,0 m / dto. 21,0 m
204 a	010 09 18 25	Tüllengehäuse 40 pol. / 40 pole hood / capot à 40 pôles
204 b	010 09 18 23	Stiftteil 40 pol. / 40 pole multiple plug / fiche multiple à 40 pôles
204 c	010 09 18 24	Buchsenteil 40 pol. / 40 pole multiple socket / prise multiple à 40 pôles
204 d	010 09 13 00	Tüllengehäuse 15 pol. / 15 pole hood / capot à 15 pôles
204 e	010 09 18 28	Stiftteil 15 pol. / 15 pole multiple plug / fiche multiple à 15 pôles
204 f	010 09 18 29	Buchsenteil 15 pol. / 15 pole multiple socket / prise multiple à 15 pôles
204 g	035 03 20 01	Reduzierring Pg 13.5 auf Pg 9 / reducing ring Pg 13.5 to Pg 9 / bague de réduction Pg 13.5 à Pg 9
204 h	035 03 20 00	Zugverschraubung Pg 9 / strain relief gland PG 9 / presse-étroupe Pg 9
204 i	010 09 18 08	Codierbuchse / coding bushing / douille de codage
204 k	010 09 18 07	Codierstift / coding pin / cheville de codage
204 l	035 03 19 00	Zugverschraubung Pg 21 / strain relief gland Pg 21 / presse-étroupe Pg 21
205	038 03 05 00	Schweißkabel 95 mm^2, 1,8 m / welding cable 95 mm^2, 1,8 m / câble de soudage 95 mm^2, 1,8 m
		dto. 6,0 m / dto. 6,0 m / dto. 6,0 m
		dto. 11,0 m / dto. 11,0 m / dto. 11,0 m
		dto. 16,0 m / dto. 16,0 m / dto. 16,0 m
		dto. 21,0 m / dto. 21,0 m / dto. 21,0 m
207	073 03 18 00	Buchsenteil 500 A / 500 A multiple socket / prise multiple à 500 A
208	073 03 11 00	Steckerteil 95 mm^2 / male connector 95 mm^2 / connecteur mâle 95 mm^2
215	040 04 01 00	Gasschlauch 3,8 m / gas hose 3,8 m / tuyau de gaz 3,8 m
		dto. 8,0 m / dto. 8,0 m / dto. 8,0 m
		dto. 13,0 m / dto. 13,0 m / dto. 13,0 m
		dto. 18,0 m / dto. 18,0 m / dto. 18,0 m
		dto. 23,0 m / dto. 23,0 m / dto. 23,0 m

Ersatzteilliste Schlauchpaket für CK 78 - GLC 503 QUINTO Profi / Spare parts list cable assembly for CK 78 - GLC 503 QUINTO Profi / Liste des pièces de rechange faisceau de câbles pour CK 78 - GLC 503 QUINTO Profi

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
216	040 02 01 00	Wasserschlauch 1,8 m / water hose 1,8 m / tuyau d'eau 1,8 m dto. 6,0 m / dto. 6,0 m / dto. 6,0 m dto. 11,0 m / dto. 11,0 m / dto. 11,0 m dto. 16,0 m / dto. 16,0 m / dto. 16,0 m dto. 21,0 m / dto. 21,0 m / dto.21,0 m
217	060 01 00 03	Schlauchtülle klein / hose bushing, small / douille pour tuyau, petite
219	060 04 00 01	Überwurfmutter R3/8" / union nut R 3/8" / écrou chapeau R 3/8"
221	042 02 00 07	Einohrklemme 12,8 mm / ear clamp 12.8 mm / borne à une oreille 12,8 mm
225	038 07 53 00	Tacholeitung 6x2x0.25, 1,8 m / speedometer cable 6x2x0.25, 1,8 m / conduit tachymètre 6x2x0.25, 1,8 m dto. 6,0 m / dto. 6,0 m / dto. 6,0 m dto. 11,0 m / dto. 11,0 m / dto. 11,0 m dto. 16,0 m / dto. 16,0 m / dto. 16,0 m dto. 21,0 m / dto. 21,0 m / dto. 21,0 m
226	049 03 02 00	Halteschelle / holding clip / bride d'arrêt
227	049 03 02 04	Innenkonus / inner cone / cône intérieur
228	049 03 02 05	Außenkonus / outer cone / cône extérieur
275	032 03 00 38	Schnellverschlußkupplung VSS 706, NW 7,2 / quick locking clutch VSS 706, NW 7,2 / raccord de fermeture rapide VSS 706, NW 7,2
276	032 03 00 35	Stecktülle ST 5812 / plug-in hood ST 5812 / capot à fiche ST 5812
277	032 03 00 36	Verschlußkupplung VSK 5812 / locking clutch VSK 5812 / raccord de fermeture VSK 5812

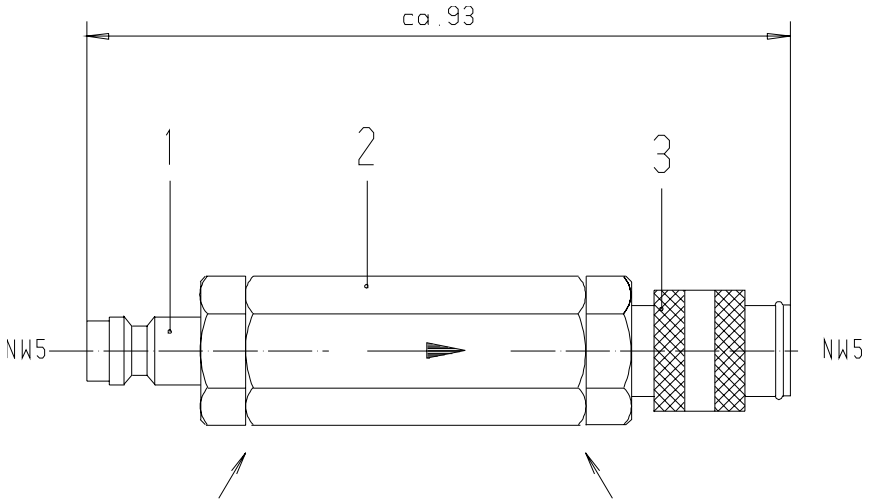
Schnittzeichnung VSP für Kabelschlepp CK 78 D/R /
Sectional drawing: Cable assembly for drag chain CK 78 D/R /
Vue partielle: Faisceau de câbles pour porte-câble CK 78 D/R



S522

Schlauchpaket für CK 78 D/R - Quinto mit flexiblem Kabel für Kabelschlepp
Cable assembly for CK 78 D/R - Quinto with flexible cable for drag chain
Faisceau de câbles pour CK 78 D/R - Quinto avec câble flexible pour porte-câble

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
200	650 64 02 50	Schlauchpaket wassergekühlt / cable assembly water-cooled/ faisceau de câbles, refroidi par eau 5,0 m
	650 64 03 50	dto. 10,0 m
	650 64 04 50	dto. 15,0 m
	650 64 05 50	dto. 20,0 m
201	040 06 23 00	Schutzschlauch Ø50x2 / protective hoseØ50x2 / tuyau de protection Ø50x2 5,0 m
		dto. 10,0 m
		dto. 15,0 m
		dto. 20,0 m
203	038 07 49 00	Steuerleitung 41x1mm² Elocab/control lead 41x1mm² Elocab/ câble de commande 41x1mm² Elocab 6,0 m
		dto. 11,0 m
		dto. 16,0 m
		dto. 21,0 m
204 a	010 09 18 25	Tüllengehäuse 40 pol./40 pole hood / capot à 40 pôles
204 b	010 09 18 23	Stiftteil 40 pol./ 40 pole multiple plug / fiche multiple à 40 pôles
204 c	010 09 18 24	Buchsenteil 40 pol. / 40 pole multiple socket / prise multiple à 40 pôles
204 d	010 09 13 00	Tüllengehäuse 15 pol./ 15 pole hood / capot à 15 pôles
204 e	010 09 18 28	Stiftteil 15 pol. /15 pole multiple plug / fiche multiple à 15 pôles
204 f	010 09 18 29	Buchsenteil 15 pol. / 15 pole multiple socket / prise multiple à 15 pôles
204 g	035 03 20 01	Reduzierring Pg 13.5 auf Pg 9 / reducing ring Pg 13.5 to Pg 7 / bague de réduction Pg 13.5 à Pg 9
204 h	035 03 20 00	Zugverschraubung Pg 9 / strain relief gland Pg 9/ presse-étoupe Pg9
204 i	010 09 18 08	Codierbuchse / coding bushing / douille de codage
204 k	010 09 18 07	Codierstift / coding pin / cheville de codage
204 l	035 03 19 00	Zugverschraubung Pg 21/strain relief gland Pg 21 / presse-étoupe Pg 21
205	038 03 05 00	Schweißkabel 95 mm² / welding cable 95 mm² / câble de soudage 95 mm² 6,0 m
		dto. 11,0 m
		dto. 16,0 m
		dto. 21,0 m
207	073 03 18 00	Buchsenteil 500 A / 500 A multiple socket / prise multiple à 500 A
208	073 03 11 00	Steckerteil 95 mm² / male connector mm² / connecteur mâle 95 mm²
215	040 04 01 00	Gasschlauch / gas hose / tuyau de gaz 8,0 m
		dto. 13,0 m
		dto. 18,0 m
		dto. 23,0 m
216	040 02 01 00	Wasserschlauch /water hose / tuyau d'eau 6,0 m
		dto. 11,0 m
		dto. 16,0 m
		dto. 21,0 m
217	060 01 00 03	Schlauchtülle klein/ hose bushing, small/ douille pour tuyau, petite
219	060 04 00 01	Überwurfmutter R3/8"/ uion nut R3/8" / écrou chapeau R3/8"
221	042 02 00 07	Einohrklemme 12.8 / ear clamp 12.8 / collier d'orreille 12.8
225	038 14 09 00	Tacholeitung 6x2x0.25²Elocab/speedometer cable 6x2x0.25²Elocab/ conduit tachymètre 6x2x0.25²Elocab 6,0 m
		dto. 11,0 m
		dto. 16,0 m
		dto. 21,0 m
226	049 03 02 00	Halteschelle / holding clip / bride d'arrêt
227	049 03 02 04	Innenkonus / inner cone / cône interieur
228	049 03 02 05	Außenkonus / outer cone / cône extérieur
275	032 03 00 38	Schnellverschlußkupplung VSS 706, NW 7,2 / quick locking clutch VSS 706, NW 7,2 / raccord de fermeture rapide VSS 706, NW 7,2
276	032 03 00 35	Stecktülle ST 5812 / connector ST 5812 / connecteur ST
277	032 03 00 36	Verschlußkupplung VSK 5812/ locking clutch VSK 5812 / raccord de fermeture VSK 5812



Gewinde mit Loctite Schnellreiniger Werk-Nr. 000 01 01 27 reinigen und mit Loctite Hydraulik-Dichtung 542, Werk-Nr. 000 01 01 03
Clean thread with Loctite quick action cleaner, part No. 000 01 01 27 and with Loctite hydraulic gasket 542, part No. 000 01 01 03
Nettoyer le filet avec le nettoyeur rapide Loctite,référence no. 000 01 01 27 et avec garniture hydraulique Loctite 542, référence no. 000 01 01 03

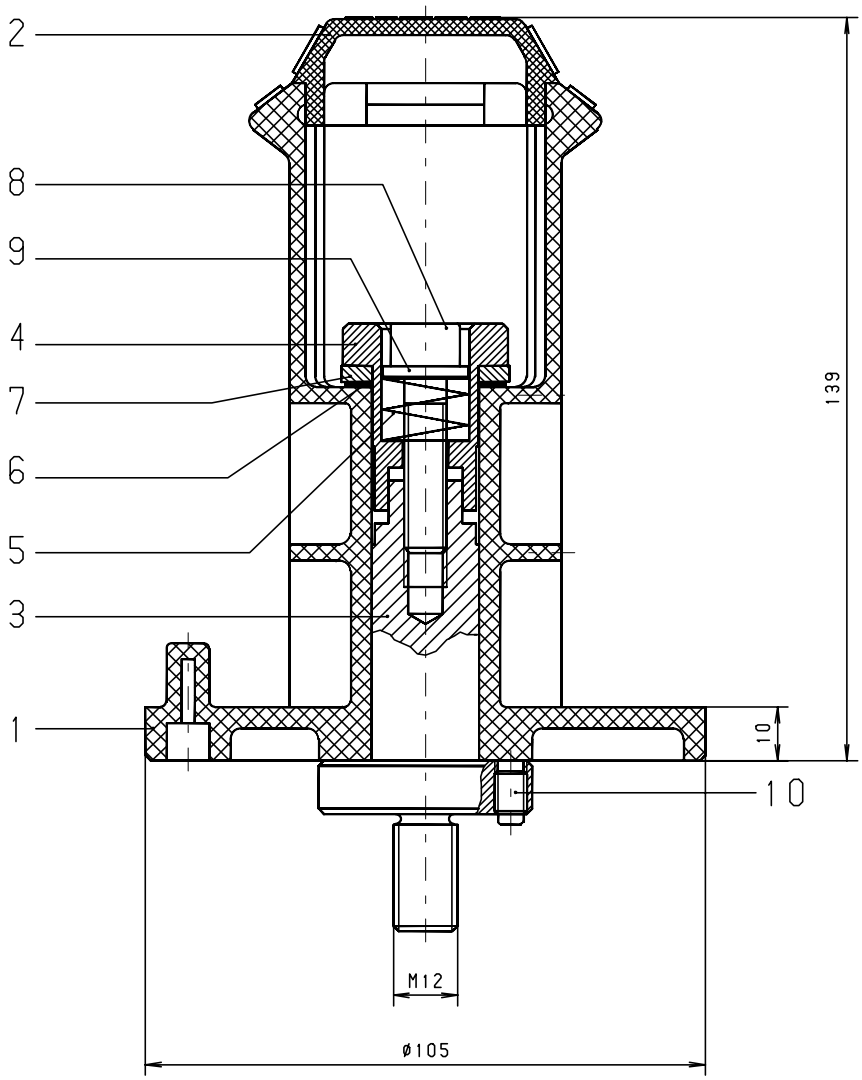
Das Rückschlagventil wird bei Bedarf bei langen VSP's eingesetzt, wenn der Arbeitsbereich der Schweißpistole höher gelegen ist, als die Stromquelle.
Der Einbau des Rückschlagventils in den Vorlauf des VSP's verhindert, daß das komplette Wasser des Wasserkreislaufs zurück in den Tank fließen kann.
Es kann somit nur noch der Rücklauf zurückfließen und der Tank läuft nicht über.

The non-return valve is used for long cable assemblies where the welding torch working area is situated higher than the power source.
The installation of the non-return valve into the cable assembly flow line prevents the whole of water in the water circuit flowing back into the tank.
Consequently, only the return flow can go back and the tank cannot overflow.

La valve de non-retour est utilisée en cas de longs faisceaux de câbles, si le domaine de travail de la torche de soudage est placé plus haut que la source de soudage.
L'installation d'une valve de non-retour dans le tuyau d'avance d'eau du faisceau de câbles empêche que la totalité de l'eau du circuit d'eau recoule dans le réservoir.
Par conséquent, le réservoir ne déborde pas.

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	048 05 23 00	Rückschlagventil kpl. / non-return valve compl. / valve de non-retour cpl.
1	032 03 00 71	Stecknippel G1/4 /plug-type nipple G1/4 / nipple enfichable G1/4
2	032 02 55 00	Rückschlagventil / non-return valve / valve de non-retour
3	032 03 00 75	Schnellkupplung R1/4 /quick clutch R1/4 / connexion rapide R1/4

Schnittzeichnung Drahtvorratsrollenhalterung kpl. /
Sectional Drawing: Wire coil holder compl. /
Vue partielle: Support de la bobine de fil cpl.

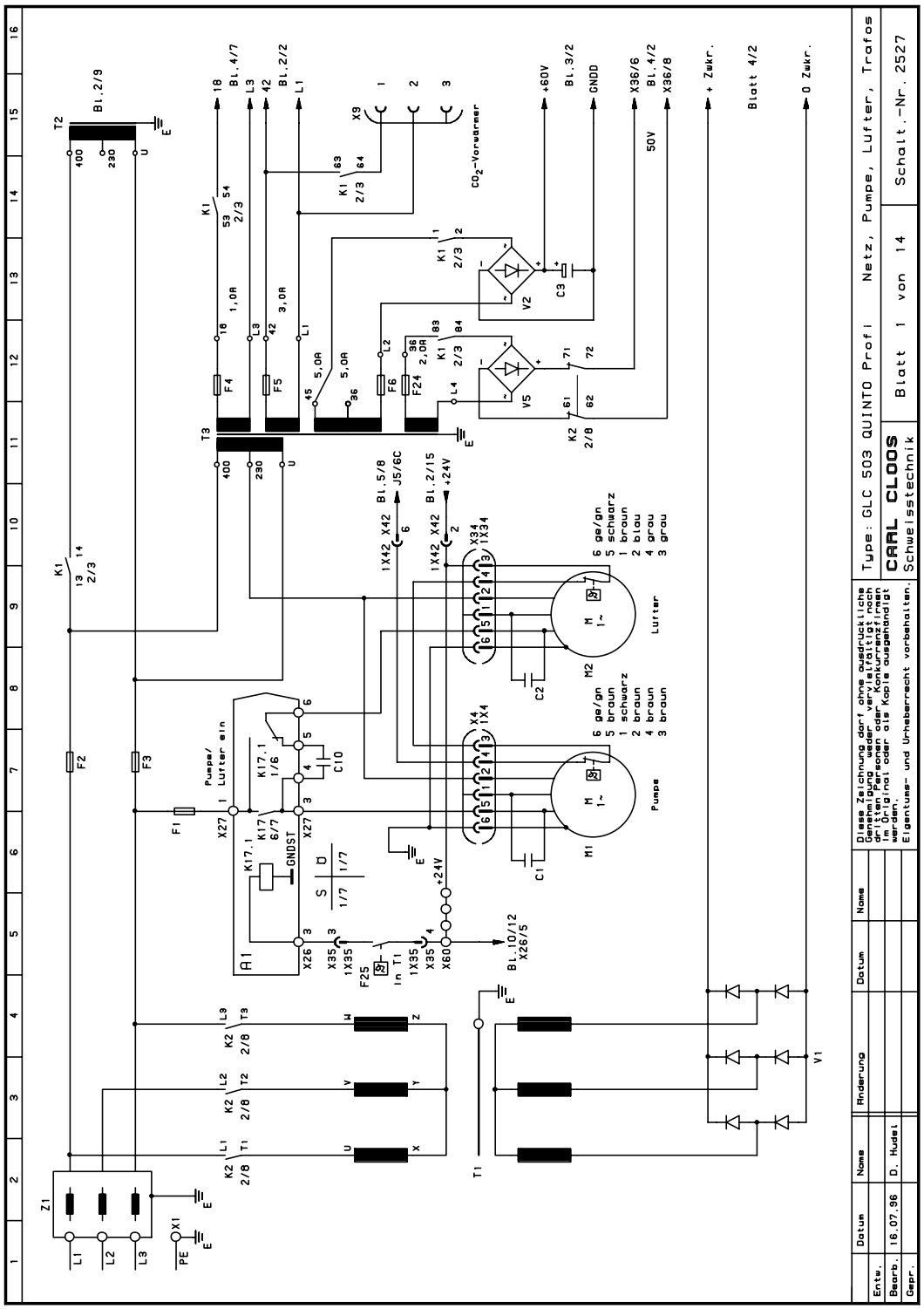


Drahtvorratsrollenhalterung kpl.	Bestell-Nr.	047 12 00 00
Wire coil holder compl.	Ref.-No.	047 12 00 00
Support de la bobine de fil cpl.	Référence	047 12 00 00

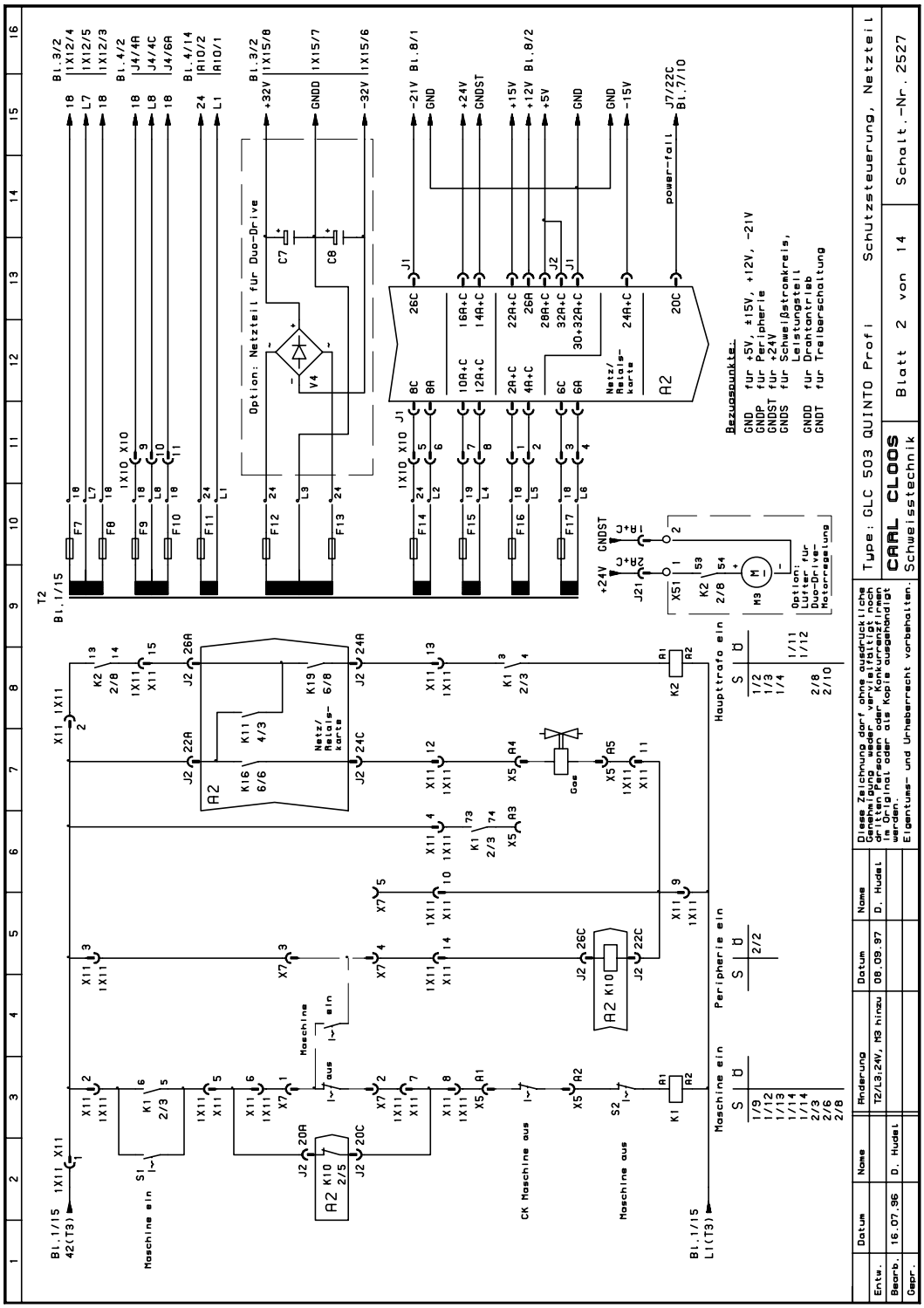
Ersatzteilliste für Drahtvorratsrollenhalterung komplett / Spare parts list for wire coil holder compl. /
Liste des pièces de rechange pour support de la bobine de fil cpl.

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	047 12 00 00	Drahtvorratsrollenhalterung komplett / wire coil holder compl. / support de la bobine de fil compl.
1	047 12 00 01	Dorn / mandrel / mandrin
2	047 12 00 02	Knebel / toggle / garrot
3	047 12 01 00	Führungsdorn kpl. / guide mandrel compl. / mandrin de guidage compl.
4	047 06 02 00	Gegenhalter / holder / contre-support
5	000 02 02 10	Druckfeder / pressure spring / ressort à pression
6	047 06 07 00	Pufferscheibe / buffer disc / disque de tampon
7	047 06 06 00	Bremsscheibe Ø 31,5/20x3 / brake disc Ø 31,5/20x3 / disque à frein Ø 31,5/20x3
8	102 20 80 35	Inbusschraube M 8 x 35 / allan screw M 8 x 35 / vis à six pans creux M 8 x 35
9	047 06 02 01	Druckscheibe / pressure disc / disque de pression
10	102 40 60 08	Gewindestift M 6 x 8 / threaded pin M 6 x 8 / vis sans tête M 6 x 8

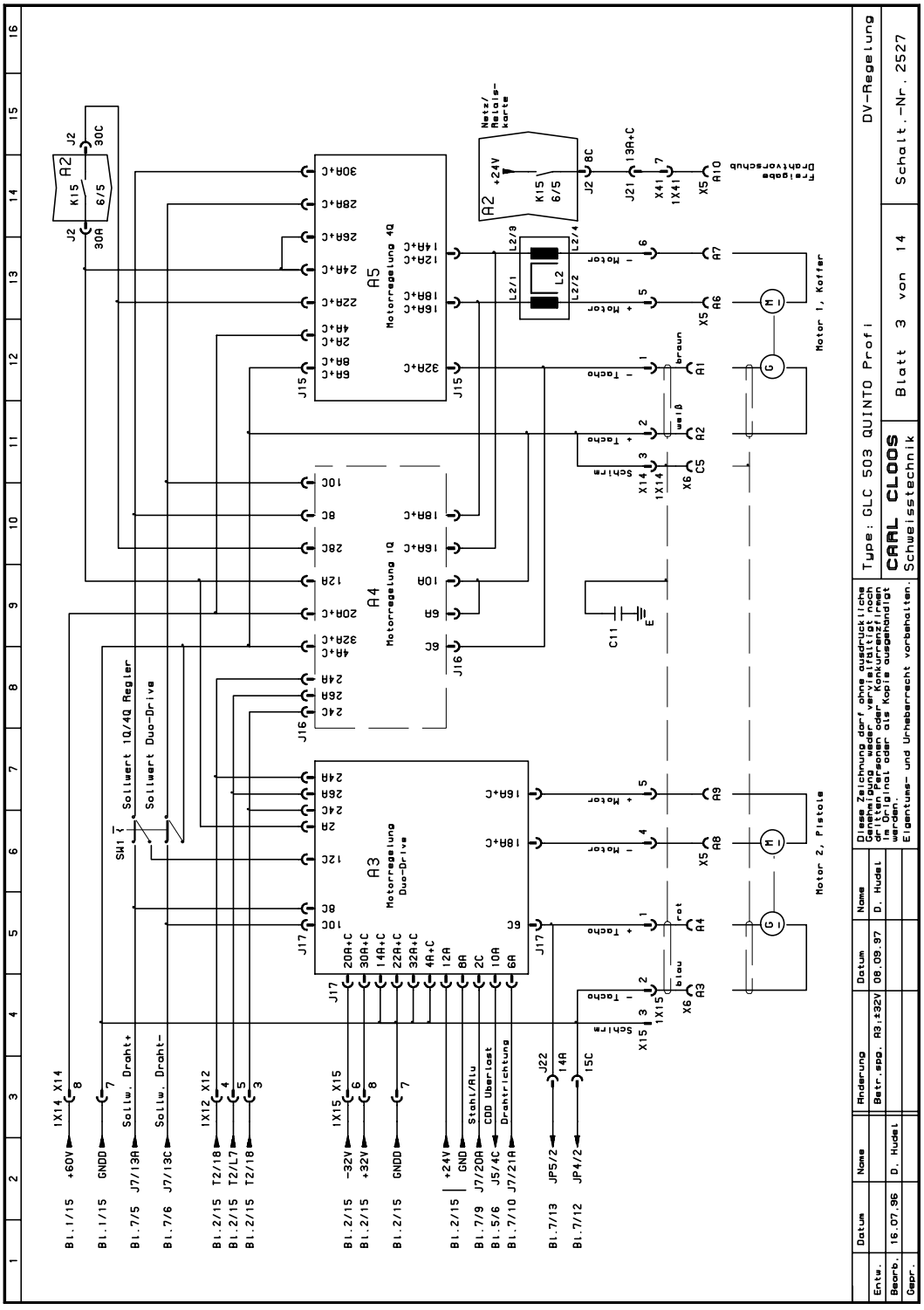
VIII. Schaltbilder / Circuit diagrams / Schémas électriques



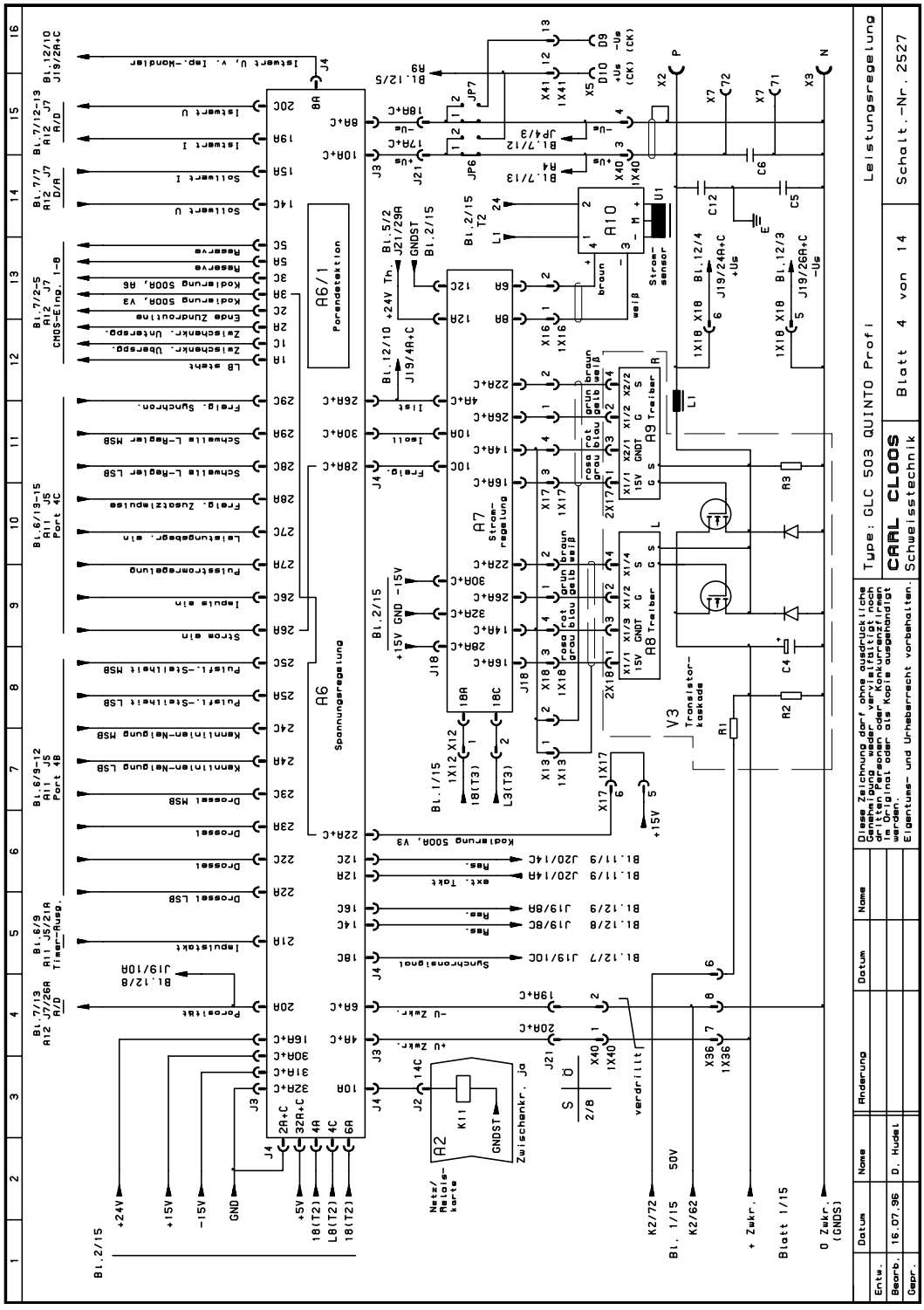
Blatt 1 von 14	Netz, Pumpe, Lüfter, Trafo	GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 1 of 14	Mains, pump, fan, transformers	GLC 503 QUINTO Profi - Diagram No. 2527
Page 1 de 14	Réseau, pompe, ventilateur, transformateurs	GLC 503 QUINTO Profi - Schéma No. 2527



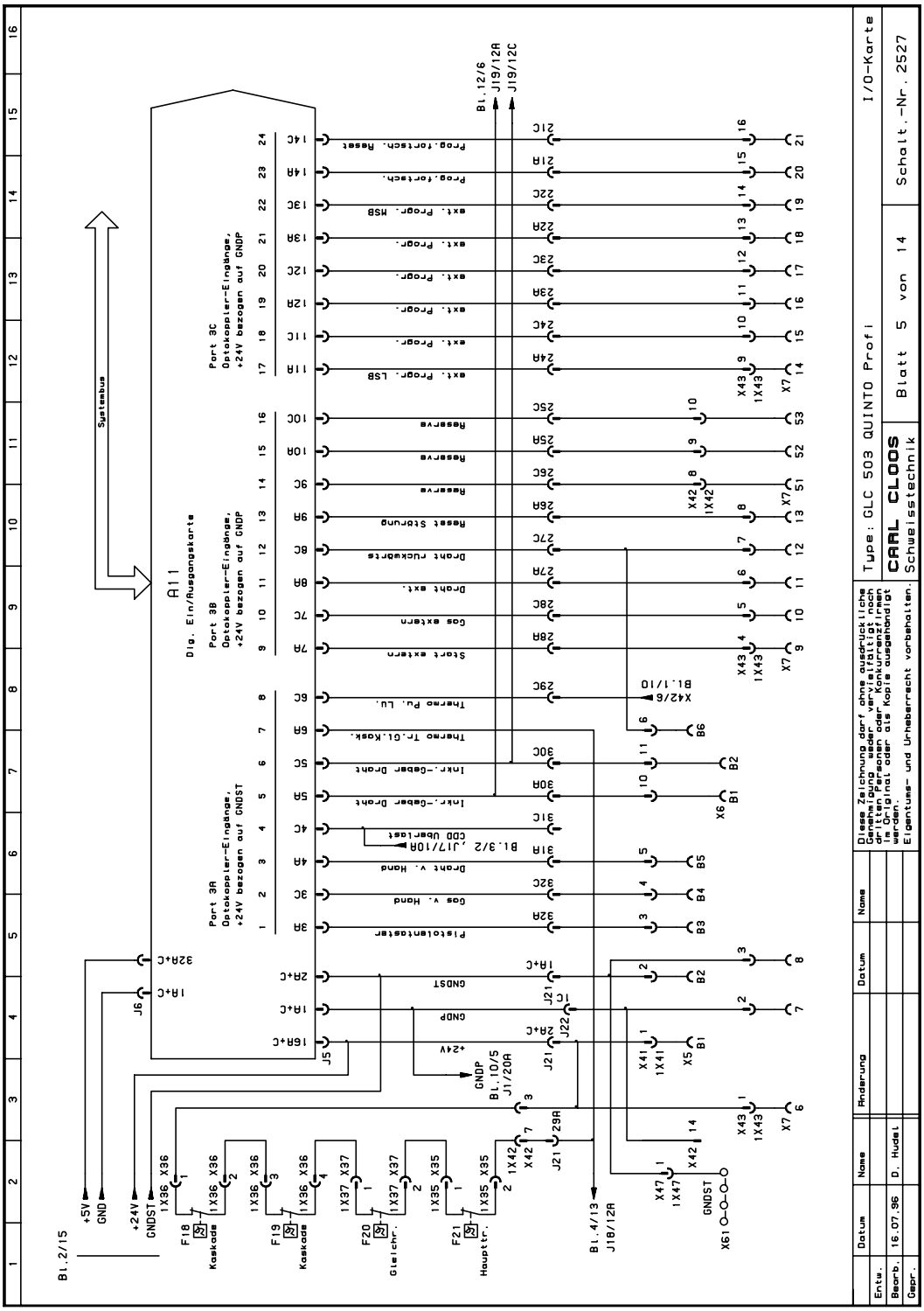
Blatt 2 von 14	Schützsteuerung, Netzteil	GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 2 of 14	Contactor control, power part	GLC 503 QUINTO Profi - Diagram No. 2527
Page 2 de 14	Commande du contacteur, bloc d´alimentation	GLC 503 QUINTO Profi - Schéma No. 2527



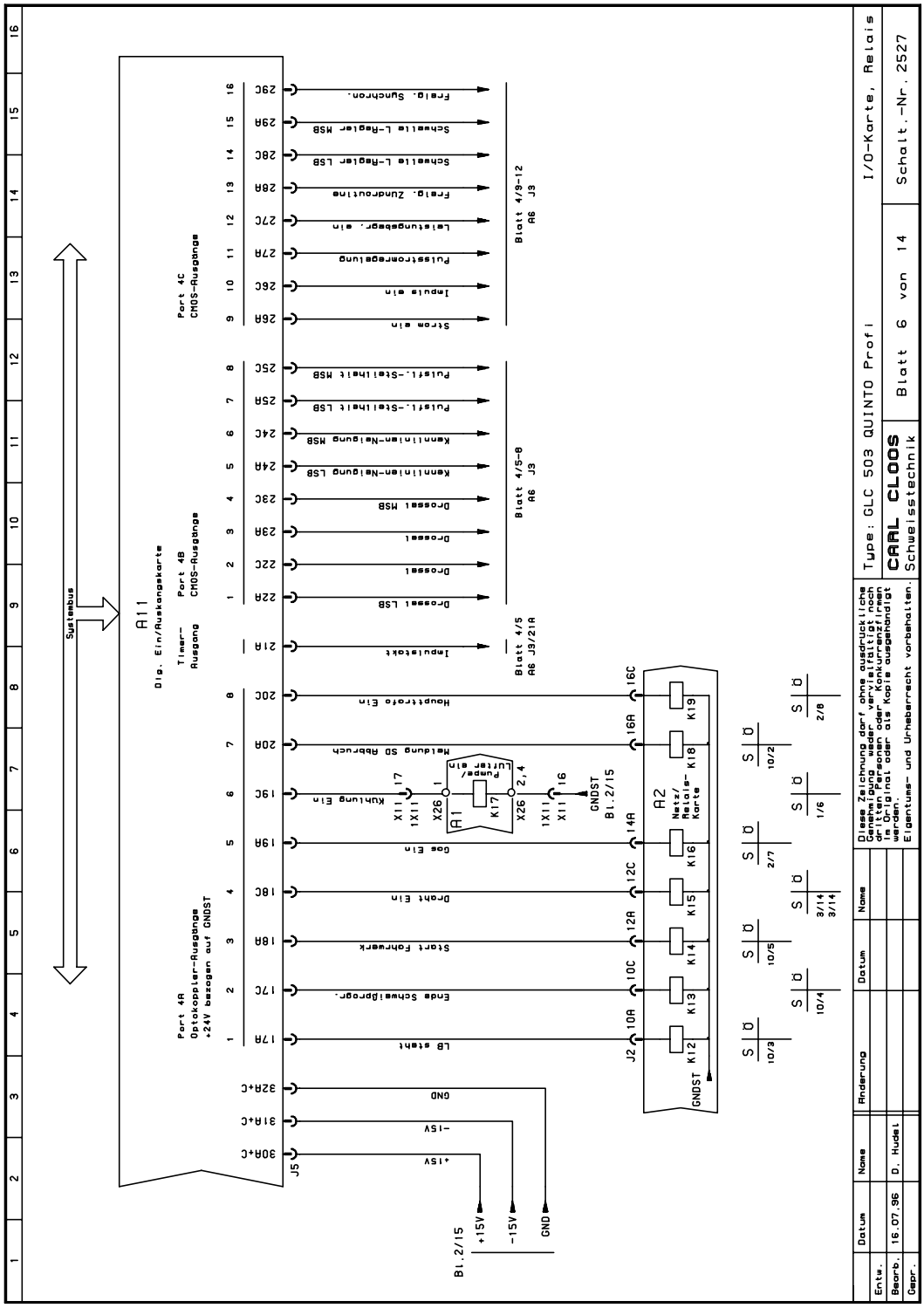
Blatt 3 von 14 DV-Regelung GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 3 of 14 DV-regulation GLC 503 QUINTO Profi - Diagram No. 2527
Page 3 de 14 Réglage DV GLC 503 QUINTO Profi - Schéma No. 2527



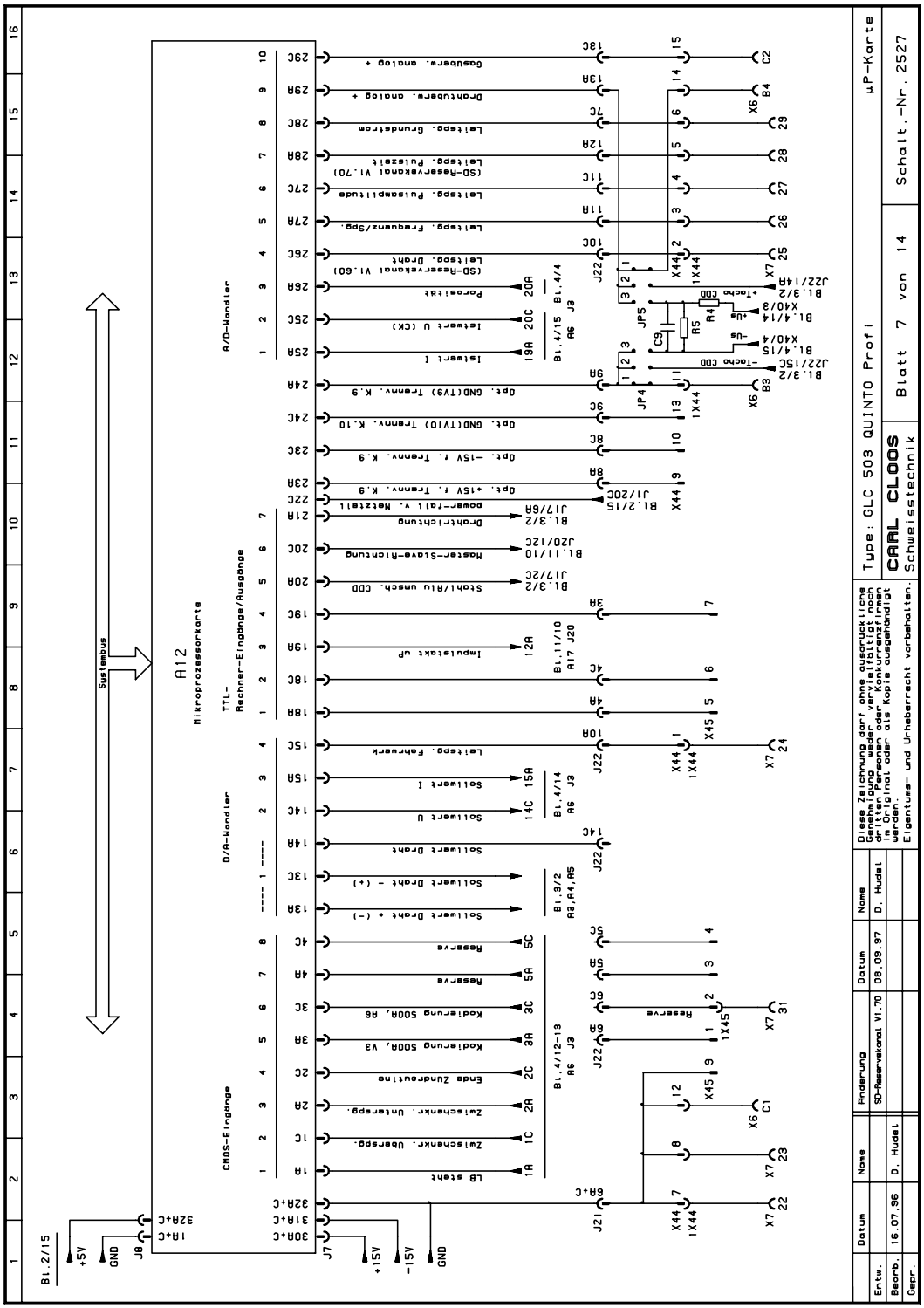
Blatt 4 von 14	Leistungsregelung	GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 4 of 14	Capacity regulation	GLC 503 QUINTO Profi - Diagram No. 2527
Page 4 de 14	Réglage capacité	GLC 503 QUINTO Profi - Schéma No. 2527



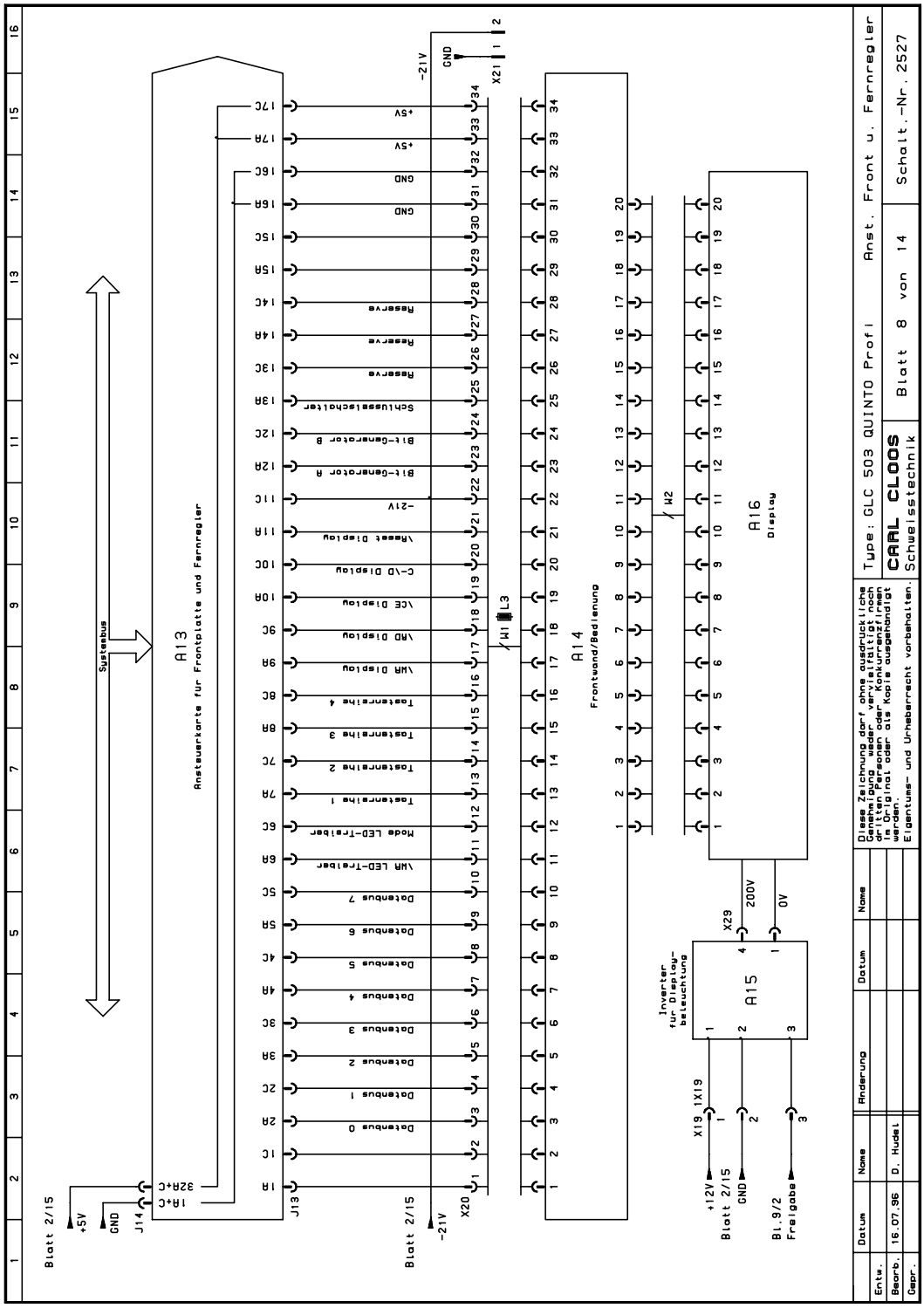
Blatt 5 von 14	I/O-Karte	GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 5 of 14	I/O card	GLC 503 QUINTO Profi - Diagram No. 2527
Page 5 de 14	Carte E/S	GLC 503 QUINTO Profi - Schéma No. 2527



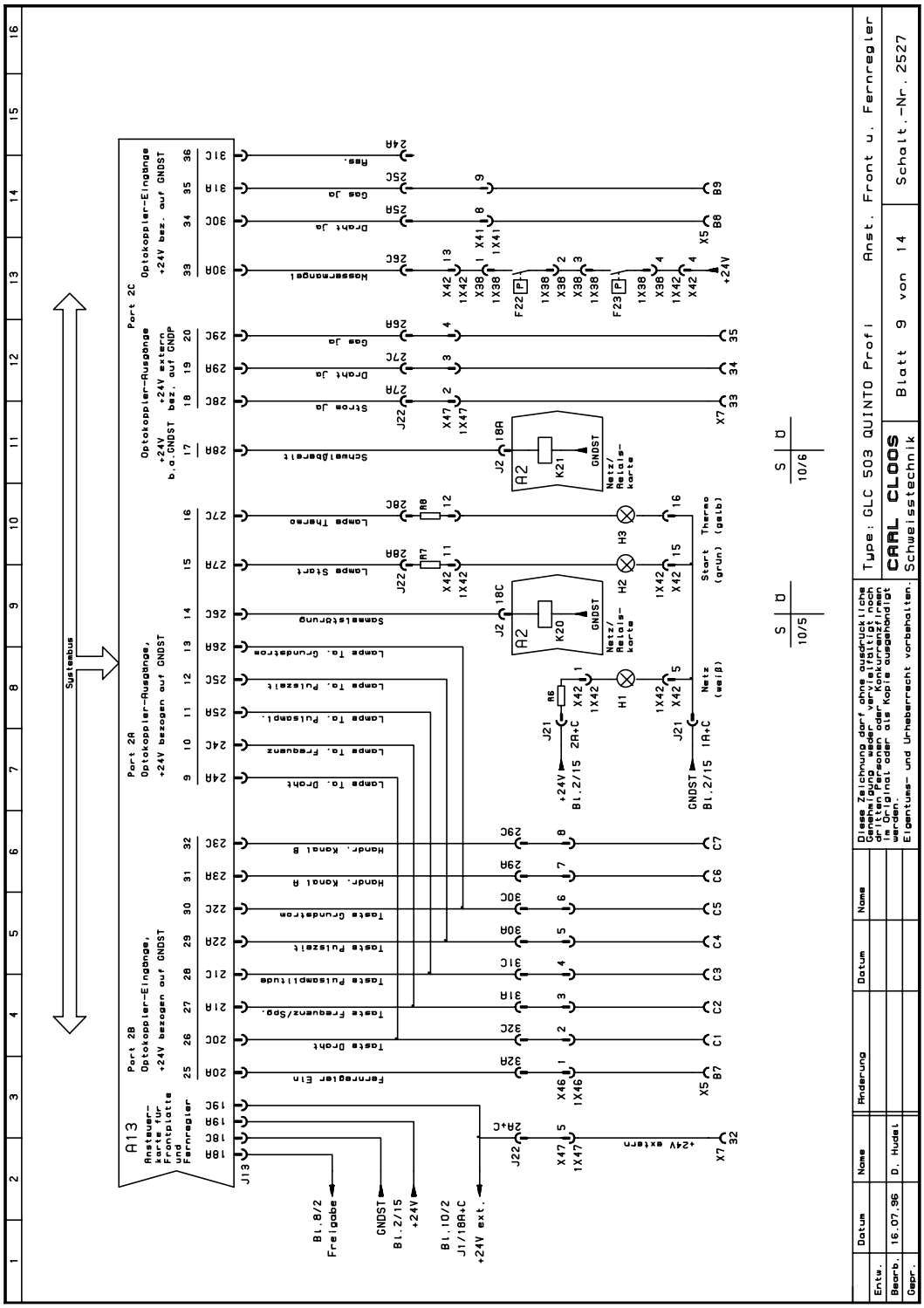
Blatt 6 von 14	I/O-Karte, Relais	GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 6 of 14	I/O card, relay	GLC 503 QUINTO Profi - Diagram No. 2527
Page 6 de 14	Carte E/S, relais	GLC 503 QUINTO Profi - Schéma No. 2527



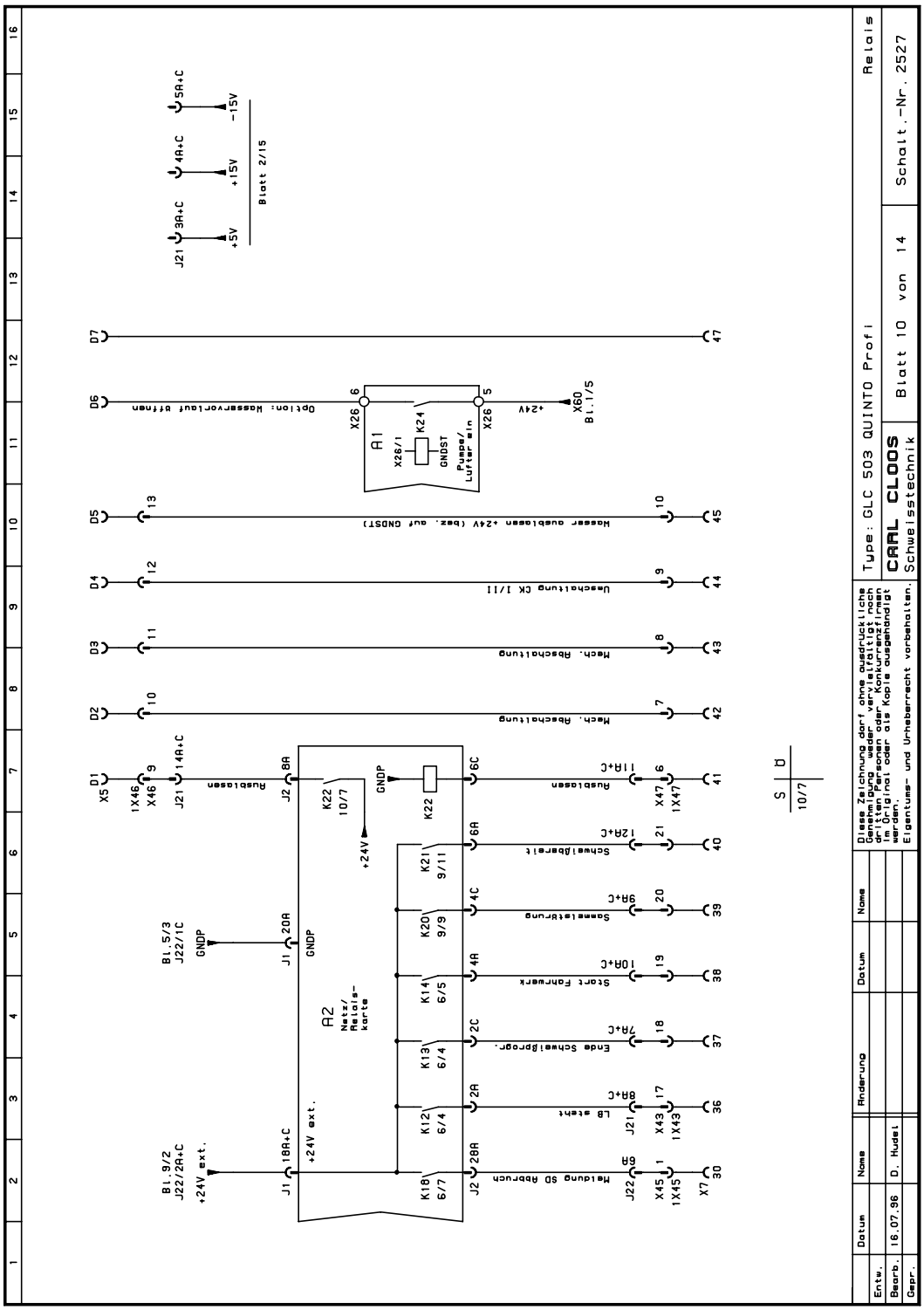
Blatt 7 von 14	uP-Karte	GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 7 of 14	uP-card	GLC 503 QUINTO Profi - Diagram No. 2527
Page 7 de 14	Carte uP	GLC 503 QUINTO Profi - Schéma No. 2527.

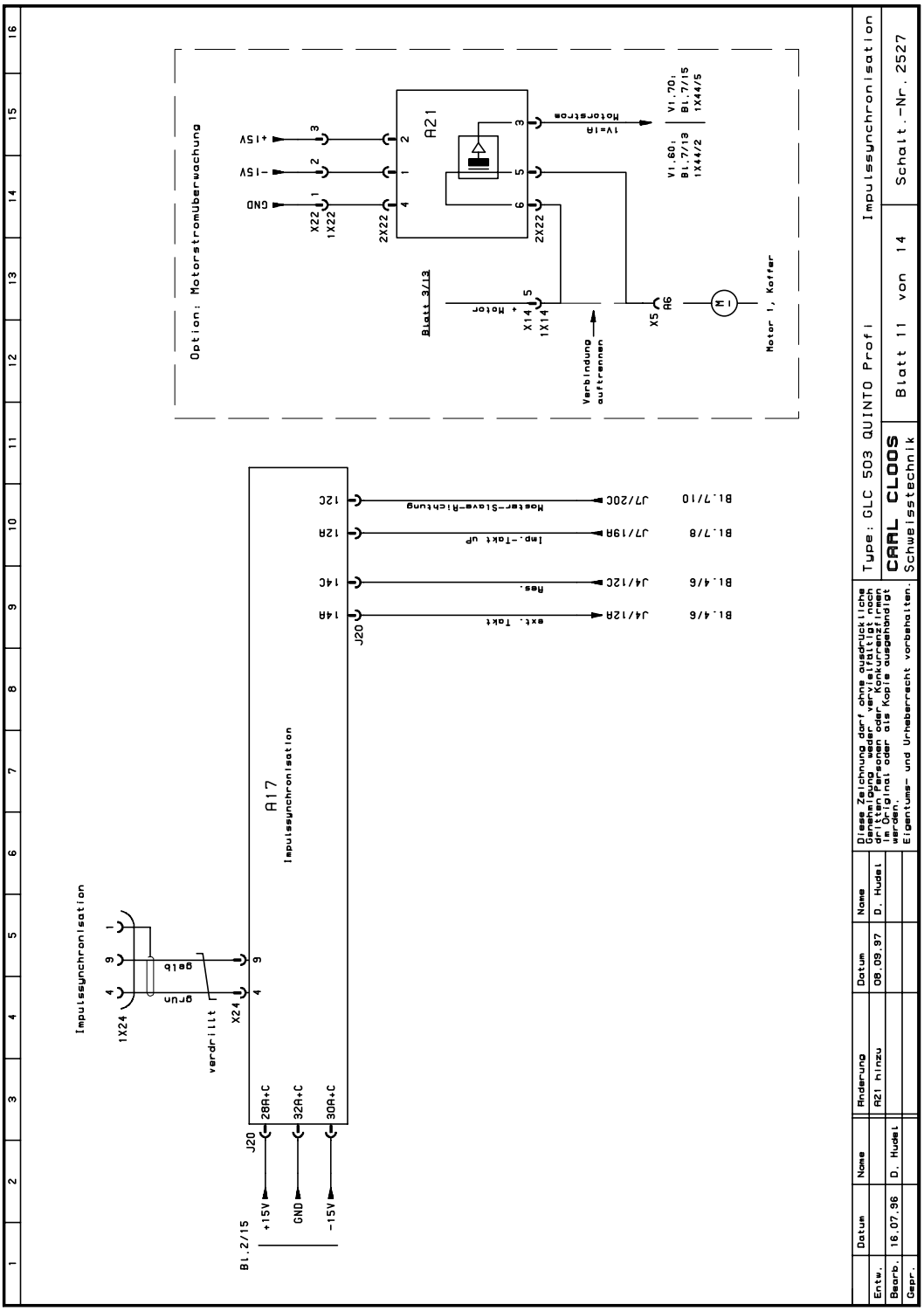


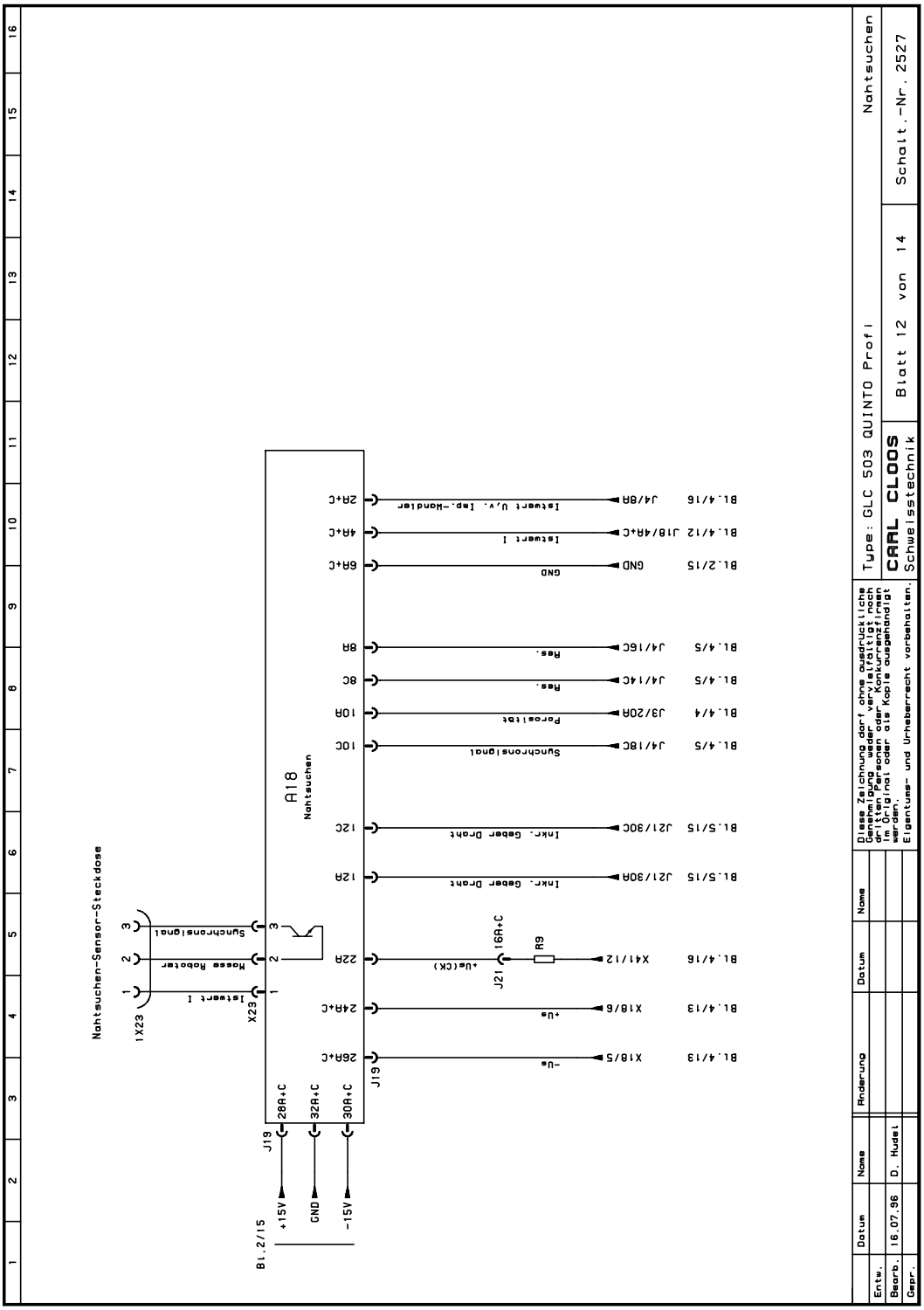
Blatt 8 von 14	Ansteuerung Front und Fernregler	GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 8 of 14	Control front and remote controller	GLC 503 QUINTO Profi - Diagram No. 2527
Page 8 de 14	Commande facade et régulateur à distance	GLC 503 QUINTO Profi - Schéma No. 2527



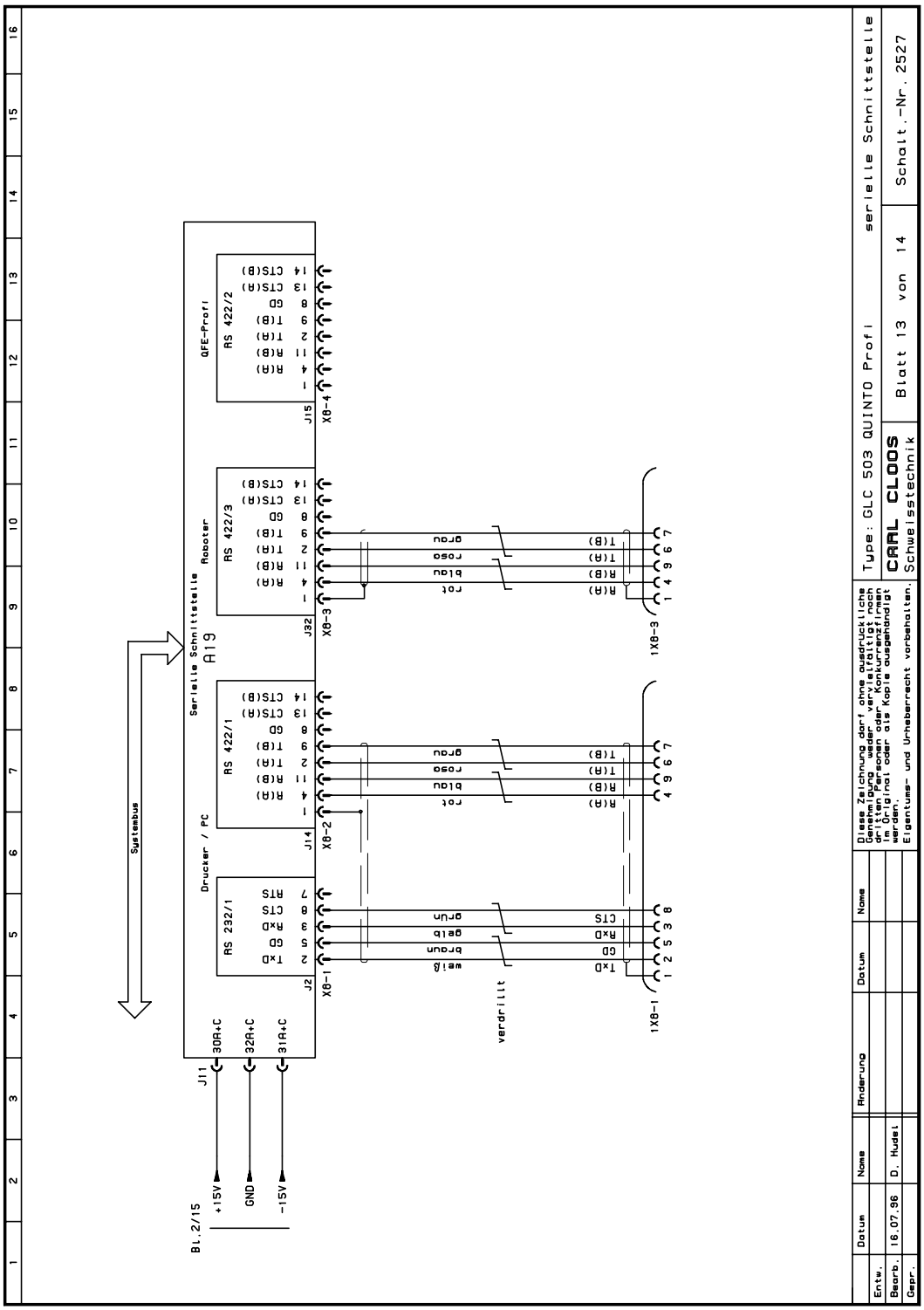
Blatt 9 von 14	Ansteuerung Front und Fernregler	GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 9 of 14	Control front and remote controller	GLC 503 QUINTO Profi - Diagram No. 2527
Page 9 de 14	Commande facade et régulateur à distance	GLC 503 QUINTO Profi - Schéma No. 2527


Relais
Type: GLC 503 QUINTO Profi
CARL CLOOS Schweisstechnik
Blatt 10 von 14
Schalt.-Nr. 2527
Blatt 2/15
A1
A2
Netz/ Relais- karte
Pumpe/ Lüfter ein
Option: Wasserverlauf öffnen
Wasser ausblasen +24V (bez. auf GNDST)
Wasserverlauf CK 1/11
Mech. Abschaltung
Mech. Abschaltung
Ausblasen
Schweißbereit
Sammelstörung
Start Fahrwerk
Ende Schweißprogr.
LB steht
Meldung SD Abbruch
+24V ext.
GNDP
Diese Zeichnung darf ohne ausdrückliche Genehmigung weder vervielfältigt noch Dritten zugänglich gemacht werden.
Eigentums- und Urheberrecht vorbehalten.

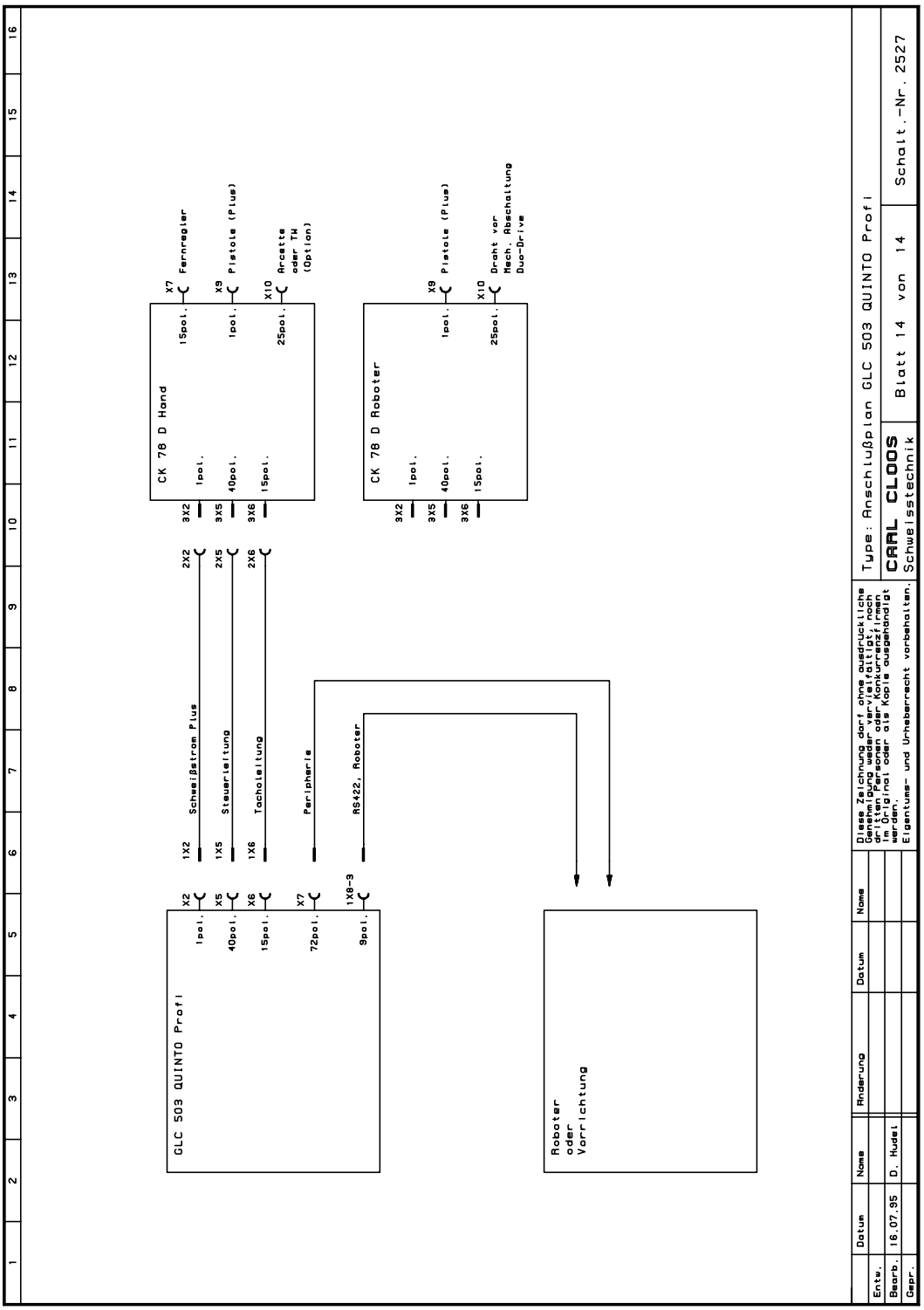

Option: Motorstromüberwachung
A21
+15V
-15V
GND
X22
1X22
2X22
Motorstrom
1V=1A
V1.70;
Bl.7/15
1X44/5
V1.60;
Bl.7/13
1X44/2
Blatt 3/13
Motor
X14
1X14
Verbindung auftrennen
X5
A6
M1
Motor 1, Kaffee
Impulssynchronisation
1X24
gelb
grün
verdrillt
X24
A17
Impulssynchronisation
J20
28A+C
32A+C
30A+C
+15V
GND
-15V
Bl.2/15
12C
12A
14C
14A
Master-Slave-Richtung
Imp.-Takt UP
Res.
ext. Takt
J7/20C
J7/19A
J4/12C
J4/12A
Bl.7/10
Bl.7/8
Bl.4/6
Bl.4/6
Type: GLC 503 QUINTO Profi
Impulssynchronisation
CARL CLOOS
Schweißstechnik
Blatt 11 von 14
Schalt.-Nr. 2527
Änderung
A21 hinzu
Name
D. Hudel
Datum
08.09.97
Entw.
Bearb.
Gepr.
16.07.96
D. Hudel
Diese Zeichnung darf ohne ausdrückliche Genehmigung weder vervielfältigt noch an Dritte weitergegeben oder sonstwie mißbräuchlich verwendet werden.
Eigentums- und Urheberrecht vorbehalten.



Blatt 12 von 14	Nahtsuchen	GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 12 of 14	Seam tracking	GLC 503 QUINTO Profi - Diagram No. 2527
Page 12 de 14	Suivi de joint	GLC 503 QUINTO Profi - Schéma No. 2527.



Blatt 13 von 14	Serielle Schnittstelle	GLC 503 QUINTO Profi - Schalt.-Nr. 2527
Page 13 of 14	Serial interface	GLC 503 QUINTO Profi - Diagram No. 2527
Page 13 de 14	Interface serielle	GLC 503 QUINTO Profi - Schéma No. 2527.



Blatt 14 von 14
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Page 14 de 14

GLC 503 QUINTO Profi - Schalt.-Nr. 2527
GLC 503 QUINTO Profi - Diagram No. 2527
GLC 503 QUINTO Profi - Schéma No. 2527.

Elektrische Stückliste - Schalt.-Nr. 2527/16.07.96 für GLC 503 QUINTO Profi/Electrical parts list - diagram No. 2527/16.07.96 for GLC QUINTO Profi /Liste des pièces électriques - schéma no. 2527/16.07.96 pour GLC QUINTO Profi

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	816 00 00 00	kpl. Gerät / machine compl. / poste complèt
A1	033 11 48 30	Steuerplatte Pumpe und Lüfter ein, 2 Relais / control board pump and fan on, 2 relays / platine pompe et ventilateur marche, 2 relais Bei Option Wasservorlauf öffnen: For option 'open water advance': Pour option 'ouvrir avance d'eau'
A1	033 11 48 40	Steuerplatte Pumpe und Lüfter ein, 3 Relais /control board pum and fan on, 3 relays/ platine de commande pompe et ventilateur marche, 3 relais
A2	033 24 84 00	Netz- und Relaiskarte / mains and relay card / carte réseau et relais
A3	033 33 29 50	V 1.60: Motorregelung 4Q für Duo-Drive / motor regulation 4Q for Duo-Drive / réglage moteur 4 Q pour Duo-Drive
A3	033 33 31 50	V 1.70: Motorregelung 4Q für Duo-Drive / motor regulation 4Q for Duo-Drive / réglage moteur 4 Q pour Duo-Drive
A5	033 33 26 20	Motorregelung 4Q für CK (für Rollen Ø 30mm) / motor regulation 4 Q for CK (for roller Ø 30 mm)/ réglage moteur 4Q pour CK (pour galet Ø 30 mm)
A6	033 09 77 20	Spannungsregelung / voltage regulation / réglage tension
A6/1	033 11 50 00	Bei SD: Subprint Porendetektion auf A6 /For SD: Subprint pore detection on A6/ Pour SD: Subprint (platine) détection de pores sur A6
A7	033 09 66 30	Stromregelung/ current regulation / réglage courant
A8	033 09 70 00	Treiberkarte links/ left driver card / carte d'attaque gauche
A9	033 09 70 10	Treiberkarte rechts/ right driver card / carte d'attaque droite
A10	033 11 41 00	Steuerplatte für Stromsensor / control board for current sensor / platine pour détecteur courant
A11	033 05 25 00	Dig. Ein/Ausgangskarte / digital input/output card / platine d'entrée/sortie digital
A12	033 05 26 20	Mikroprozessorkarte Standard und SD /micro processor card standard and SD / carte micro processeur standard et SD
A12	033 05 26 10	Mikroprozessorkarte bei SD mit CDD / micro processor card for SD with CDD/ carte micro processeur pour SD avec CDD EPROM-Satz je nach Ausf. und Sprache, s.u./ set of EPROM, for various versions and languages, see below / jeu d'EPROMs pour versions et langues différentes voir ci-dessous
A13	033 05 27 00	Ansteuerkarte für Frontplatte u. Fernregler / control card for front plate and remote controller / carte de commande p. façade et régulateur à distance
A14	033 05 30 00	Steuerplatte Frontwand/Bedienung / control board front panel/operation / platine façade / opération
A15	033 51 21 10	Inverter für Display-Beleuchtung/inverter for display lighting / inverseur pour illumination d'affichage visuel
A16	033 51 21 00	Flüssigkristall-Display/ liquid crystal display / affichage à cristal liquide
A17	033 05 52 00	Option: Steuerplatte Impulssynchronisation
A18	033 05 38 10	Option: Nahtsuchen-Anpaßkarte / option: seam tracking-adapter card / option: carte d'adaptateur suivi de joint
A19	033 05 37 10	Option: Ser. Schnittst. f. PC/Druckeranschluß /option: serial interface for PC/ printer connection/ option: interface sérielle pour PC/raccord imprimante
A19	033 05 37 40	Option: Ser. Schnittst. f. SD und Robo seriell / option: serial interface for SD and Robo serial / option: interface sérielle pour SD et Robo sériel

Elektrische Stückliste - Schalt.-Nr. 2527/16.07.96 für GLC 503 QUINTO Profi/Electrical parts list - diagram No. 2527/16.07.96 for GLC QUINTO Profi /Liste des pièces électriques - schéma no. 2527/16.07.96 pour GLC QUINTO Profi

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
		Option Motorstromüberwachung bei SD: Option motor current monitoring for SD Option surveillance courant moteur pour SD
A21	033 11 51 00	Steuerplatte Motorstromüberwachung / control board motor current monitoring/ platine surveillance courant moteur
	033 05 28 10	Grundplatte III im Kartenrack / base plate III in card rack / plaque de base III dans le rack à cartes
	033 05 29 00	Anschlußkarte II, bei Standard-Ausf. und SD / connection card II, for standard version and SD / carte de connexions II, pour version standard et SD
	033 05 29 20	Anschlußkarte II, bei SD mit CDD /connection card II, for SD with CDD/ carte de connexions II, pour SD avec CDD
C1	an Pumpe	Kondensator für Pumpe / capacitor for pump / condensateur pour pompe
C2	am Lüfter	Kondensator für Lüfter / capacitor for fan / condensateur pour ventilateur
C3	021 01 12 69	Elko 10.000µF/100V für Drahtantrieb / Elko 10.000µF/100V for wire drive / Elko 10.000µF/100V pour entraînement de fil
C4	021 01 12 69	Elko 10.000µF/100V für Zwischenkreis, Elko 10.000µF/100V for intermediate circuit / Elko 10.000µF/100V pour circuit intermédiaire an der Transistorkaskade 10 Stück parallel / at transistor cascade 10 off parallel sur cascade transistor 10 pcs. en parallèle
C5	021 02 02 05	Polyesterkondensator 10nF/630V / polyester capacitor 10nF/630V / condensateur polyester 10nF/630V
C6	021 02 02 05	Polyesterkondensator 10nF/630V / polyester capacitor 10nF/630V / condensateur polyester 10nF/630V
C9	Anschl.karte	Kondensator 47nF/100V /capacitor 47nF/100V / condensateur 47nF/100V
C10	021 01 12 16	Kondensator 12µF/240V für Ventilator Stufe 1/ capacitor 12µF/240V for fan, step 1 / condensateur 12µF/240V pour ventilateur, position 1
C11	021 02 02 05	Polyesterkondensator 10nF/630V / polyester capacitor 10nF/630V / condensateur polyester 10nF/630V
C12	021 02 02 05	Polyesterkondensator 10nF/630V / polyester capacitor 10nF/630V / condensateur polyester 10nF/630V
F1	016 02 04 01	Sicherung 4A tr. Pumpe und Lüfter / slow fuse 4 A, pump and fan / fusible à action retardée 4A, pompe et ventilateur
F2	016 02 04 02	Sicherung 6,3A tr. prim. Steuertrafo T2/T3 / slow fuse 6,3 A, primary control transformer T2/T3 / fusible à action retardée 6,3 A, transformateur de commande primaire T2/T3
F3	016 02 04 02	Sicherung 6,3A tr. prim. Steuertrafo T2/T3 slow fuse 6,3 A, primary control transformer T2/T3 / fusible à action retardée 6,3 A, transformateur de commande primaire T2/T3
	033 04 81 10	Sicherungsleiste kpl. / fuse strip compl./ reglette à fusibles cpl.
F4	016 02 01 18	Sicherung 1A mT sek. Steuertrafo T3, 18V / fuse 1AmT, secondary control transformerT3, 18V / fusible 1AmT, transformateur de commande secondaire T3, 18V
F5	016 02 04 01	Sicherung 4A tr. sek. Steuertrafo T3, 42V / slow fuse 4A, secondary control transformer T3, 42 V
F6	016 02 01 29	Sicherung 10A tr. sek. Steuertrafo T3, L2 / slow fuse 10A, secondary control transfomer T3, L2 / fusible à action retard. 10A, transform. commande secondaire T3, L2

Elektrische Stückliste - Schalt.-Nr. 2527/16.07.96 für GLC 503 QUINTO Profi/Electrical parts list - diagram No. 2527/16.07.96 for GLC QUINTO Profi /Liste des pièces électriques - schéma no. 2527/16.07.96 pour GLC QUINTO Profi

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
F7	016 02 01 18	Sicherung 1A mT sek. Steuertrafo T2, 18V / fuse 1A mT secondary control transformer T2, 18V / fusible 1A mT, transformateur de commande secondaire T2, 18V
F8	016 02 01 18	Sicherung 1A mT sek. Steuertrafo T2, 18V / fuse 1A mT secondary control transformer T2, 18V / fusible 1A mT, transformateur de commande secondaire T2, 18V
F9	016 02 01 18	Sicherung 1A mT sek. Steuertrafo T2, 18V / fuse 1A mT secondary control transformer T2, 18V / fusible 1A mT, transformateur de commande secondaire T2, 18V
F10	016 02 01 18	Sicherung 1A mT sek. Steuertrafo T2, 18V / fuse 1A mT secondary control transformer T2, 18V / fusible 1A mT, transformateur de commande secondaire T2, 18V
F11	016 02 01 18	Sicherung 1A mT sek. Steuertrafo T2, 24V / fuse 1A mT secondary control transformer T2, 24V / fusible 1A mT, transformateur de commande secondaire T2, 24V
F12	016 02 04 01	Sicherung 4A tr. sek. Steuertrafo T2, 21V / slow fuse 4A, secondary control transformer T2, 21 V / fusible à action retardée 4A, transformateur de commande secondaire T2, 21 V
F13	016 02 04 01	Sicherung 4A tr. sek. Steuertrafo T2, 21V / slow fuse 4A, secondary control transformer T2, 21 V / fusible à action retardée 4A, transformateur de commande secondaire T2, 21 V
F14	016 01 01 06	Sicherung 0,4A tr. sek. Steuertrafo T2, 24V / slow fuse 0,4 A, secondary control transformer T2, 24 V / fusible à action retardée 0,4A, transformateur de commande secondaire T2, 24 V
F15	016 02 04 03	Sicherung 2A tr. sek. Steuertrafo T2, 19V/ slow fuse 2A, secondary control transformer T2, 19V / fusible à action retardée 2A, transformateur de commande secondaire T2, 19V
F16	016 02 04 01	Sicherung 4A tr. sek. Steuertrafo T2, 18V / slow fuse 4 A, secondary control transformer T2, 18V fusible à action retardée 4A, transformateur de commande secondaire T2, 18V
F17	016 02 01 18	Sicherung 1A mT sek. Steuertrafo T2, 18V / fuse 1A mT, secondary control transformer T2, 18V / fusible 1A mT, transformateur de commande secondaire T2, 18V
F18	016 06 22 00	Thermoschalter in Kaskade 80°C ± 5°C / thermal switch in cascade 80°C ± 5°C déclencheur thermique dans cascade 80°C ± 5°C
F19	016 06 22 00	Thermoschalter in Kaskade 80°C ± 5°C / thermal switch in cascade 80°C ± 5°C déclencheur thermique dans cascade 80°C ± 5°C
F20	in V 1	Thermoschalter in Gleichrichter 100°C ± 5°C / thermal switch in rectifier 100°C ± 5°C / déclencheur thermique dans redresseur 100°C ± 5°C
F21	016 06 20 00	Thermoschalter in Haupttrafo 160°C ± 10°C /thermal switch in main transformer 160°C ± 10°C/déclencheur thermique dans transformateur princ. 160°C ± 10°C
F22	016 09 10 00	Schwimmerschalter im Wassertank / float type switch in water tank / interrupteur à flotteur dans réservoir d'eau
F23	016 09 09 00	Durchflußwächter im Pistolenkreislauf / flow switch in torch circuit /

Elektrische Stückliste - Schalt.-Nr. 2527/16.07.96 für GLC 503 QUINTO Profi/Electrical parts list - diagram No. 2527/16.07.96 for GLC QUINTO Profi /Liste des pièces électriques - schéma no. 2527/16.07.96 pour GLC QUINTO Profi

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
		contrôleur de débit dans le circuit de la torche
F24	016 02 04 01	Sicherung 4A tr. sek. Steuertrafo T3, 36V / slow fuse 4A, secondary control transformer T3, 36V
F25	016 06 43 00	Thermoschalter in Haupttrafo 70°C ± 5 °C / thermal switch in main transformer 70°C ± 5 °C/ déclencheur thermique dans transformateur principal 70°C ± 5 °C
H1	020 03 01 07	Kontrolle Netz, weiß /indicator lamp 'mains supply', white / lampe témoin 'alimentation réseau', blanche
H2	020 03 01 05	Kontrolle Start, grün / indicator lamp ' start', green /lampe témoin 'marche', verte
H3	020 03 01 06	Kontrolle Thermo, gelb / indicator lamp 'temperature', yellow / lampe témoin 'température', jaune
	020 03 01 08	Glühlampe 24V/0,7W / lamp 24V/0,7W / ampoule 24V/0,7W
J1	auf Grundpl.	32pol. Buchsenleiste für A2 / 32 pole multiple plug for A2 / prise multiple à 32 pôles pour A2
J2	auf Grundpl.	32pol. Buchsenleiste für A2 / 32 pole multiple plug for A2 / prise multiple à 32 pôles pour A2
J3	auf Grundpl.	64pol. Buchsenleiste für A6 / 64 pole multiple plug for A6 / prise multiple à 64 pôles pour A6
J4	auf Grundpl.	32pol. Buchsenleiste für A6 / 32 pole multiple plug for A6 / prise multiple à 32 pôles pour A6
J5	auf Grundpl.	64pol. Buchsenleiste für A11/ 64 pole multiple plug for A11 / prise multiple à 64 pôles pour A11
J6	auf Grundpl.	64pol. Buchsenleiste für A11 / 64 pole multiple plug for A11 / prise multiple à 64 pôles pour A11
J7	auf Grundpl.	64pol. Buchsenleiste für A12 / 64 pole multiple plug for A12 / prise multiple à 64 pôles pour A12
J8	auf Grundpl.	64pol. Buchsenleiste für A12 / 64 pole multiple plug for A12 / prise multiple à 64 pôles pour A12
J9	auf Grundpl.	64pol. Buchsenleiste Reserve / 64 pole multiple plug reserve / prise multiple à 64 pôles réserve
J10	auf Grundpl.	64pol. Buchsenleiste Reserve / 64 pole multiple plug reserve / prise multiple à 64 pôles réserve
J11	auf Grundpl.	64pol. Buchsenleiste für A19 / 64 pole multiple plug for A19 / prise multiple à 64 pôles pour A19
J12	auf Grundpl.	64pol. Buchsenleiste für A19 / 64 pole multiple plug for A19 / prise multiple à 64 pôles pour A19
J13	auf Grundpl.	64pol. Buchsenleiste für A13 / 64 pole multiple plug for A12 / prise multiple à 64 pôles pour A12
J14	auf Grundpl.	64pol. Buchsenleiste für A13 / 64 pole multiple plug for A12 / prise multiple à 64 pôles pour A12
J15	auf Grundpl.	32pol. Buchsenleiste für A5 / 32 pole multiple plug for A5 / prise multiple à 32 pôles pour A5
J16	auf Grundpl.	32pol. Buchsenleiste für A4 / 32 pole multiple plug for A4 / prise multiple à 32 pôles pour A4
J17	auf Grundpl.	32pol. Buchsenleiste für A3 / 32 pole multiple plug for A3 /

Elektrische Stückliste - Schalt.-Nr. 2527/16.07.96 für GLC 503 QUINTO Profi/Electrical parts list - diagram No. 2527/16.07.96 for GLC QUINTO Profi /Liste des pièces électriques - schéma no. 2527/16.07.96 pour GLC QUINTO Profi

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
		prise multiple à 32 pôles pour A3
J18	auf Grundpl.	32pol. Buchsenleiste für A7 / 32 pole multiple plug for A7 / prise multiple à 32 pôles pour A7
J19	auf Grundpl.	32pol. Buchsenleiste für A18 / 32 pole multiple plug for A18 / prise multiple à 32 pôles pour A18
J20	auf Grundpl.	32pol. Buchsenleiste für A17 / 32 pole multiple plug for A17 / prise multiple à 32 pôles pour A17
J21	auf Grundpl.	64pol. Buchsenleiste für Anschlußkarte / 64 pole multiple plug for connection card / prise multiple à 64 pôles pour carte de connexions
J22	auf Grundpl.	64pol. Buchsenleiste für Anschlußkarte / 64 pole multiple plug for connection card / prise multiple à 64 pôles pour carte de connexions
K1	013 01 21 00	Schütz Maschine ein / connector machine on / connecteur machine marche
K2	012 02 16 00	Schütz Haupttrafo ein / connector main transformer on / connecteur transformateur marche
K2	012 02 13 55	Hilfsschalterblock / auxiliary switch / interrupteur auxiliaire K10-K16 auf A2 / K10-K16 on A2 / K10-K16 sur A2 K17 u. K17.1 auf A1/ K17 and K17.1 on A1/ K17 et K17.1 sur A1 K18-K23 auf A2 / K18-K23 on A2 / K18-K23 sur A2 K24 auf A1 / K24 on A1 / K24 sur A1
L1	802 88 35 00	Schweißstromdrossel / welding current choke / self du courant de soudage
L2	027 09 15 00	Drossel 6A, 14mH / choke 6A, 14mH / self 6A, 14 mH
L3	027 09 18 00	Ferrit-Blockkern für W1 / ferrite core for W1/ noyau en ferrite pour W1
M1	023 03 33 00	Pumpe mit Kondensator u. Stecker / pump with capacitor and plug / pompe avec condensateur et fiche
M2	022 04 35 00	Lüfter, mit Kondensator und Stecker / fan, with capacitor and plug / ventilateur, avec condensateur et fiche
R1	030 04 01 87	Widerstand 10 Ohm/50W für Zwischenkreisladung / resistance 10 Ohm/50W for intermediate circuit charging / résistance 10 Oh/50W pour chargement du circuit intermédiaire
R2	030 04 04 01	Entladewiderstand 470 Ohm/25W / discharge resistance 470 Ohm/25W / résistance de décharge 470 Ohm/25W
R3	030 01 26 00	Widerstand 150 Ohm/200W /resistance 150 Ohm/ 200W/ résistance 150Ohm/200W
R4	Anschl.karte	Widerstand 47k Ohm/0,6W/ resistance 47 k Ohm/0,6W / résistance 47 k Ohm/0,6 W
R5	Anschl.karte	Widerstand 7,5k Ohm/0,6W / resistance 7,5 k Ohm/0,6W / résistance 7,5k Ohm/0,6 W
R6	Anschl.karte	Widerstand 120 Ohm/0,6W/ resistance 7,5 k Ohm/0,6W / résistance 120 Ohm/0,6 W
R7	Anschl.karte	Widerstand 120 Ohm/0,6W/ resistance 120 Ohm/0,6W / résistance 120 Ohm/0,6 W
R8	Anschl.karte	Widerstand 120 Ohm/0,6W / resistance 120 Ohm/0,6W / résistance 120 Ohm/0,6 W
R9	Anschl.karte	Widerstand 10k Ohm/0,6W/ resistance 10 k Ohm/0,6W / résistance 10k Ohm/0,6 W

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Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
S1	008 01 00 20	Taster Maschine ein, grün / green key machine on / bouton poussoir vert machine marche
S2	008 01 00 19	Taster Maschine aus, rot /red key machine off / bouton poussoir rouge machine arrêt
T1	813 23 00 00	Haupttrafo 230/400V/main transformer 230/400V/ transformateur principal 230/400 V
T2	027 05 11 00	Steuertrafo 230/400V 267VA, mit Klemmenleiste / control transformer 230/400V 267VA with terminal strip/ transformateur de commande 230/400V 267VA, avec réglette de bornes
T3	027 05 10 00	Steuertrafo 230/400V 845VA, mit Klemmenleiste / control transformer 230/400V 845VA with terminal strip/ transformateur de commande 230/400V 845VA, avec réglette de bornes
U1	028 09 01 25	Stromsensor / current sensor / détecteur courant
V1	055 13 02 10	Hauptgleichrichter mit Thermoschalter / main rectifier with temperature switch / redresseur principal avec interrupteur température
V2	028 03 19 00	Gleichrichter 200V/25A für Motorregelung/rectifier 200V/25A f. motor regulation / redresseur 200V/25A pour réglage moteur
V3	055 45 10 00	Transistorkaskade kpl. mit Kondensatorbatterie, Treiberkarten u. Thermoschaltern, Schalt. 2441/ transistor cascade compl. with capacitor battery driver cards and temperature switches, circuit No. 2441 /cascade transistor cpl. avec batterie condensateur, cartes d'attaques et interrupteurs température, circuit no. 2441
V5	028 03 19 00	Gleichrichter 200V/25A für Zwischenkreis / rectifier 200V/25A for intermediate circuit / redresseur 200V/25A pour circuit intermédiaire
W1	038 13 11 00	Flachbandkabel 34adr. kpl. mit Steckerteilen 260mm lang, Verbindung Grund platte-Frontplatte /flat cable 34 wires compl. with plug parts 260mm long, connection base plate-front plate/ câble plat à 34 fils avec fiches, longueur 260mm, connexion plaque de base - plaque frontale
W2	038 13 12 00	Flachbandkabel 20adr. kpl. mit Steckerteilen 70mm lang, Verbindung Frontplatte-Display / flat cable 20 wires compl. with plug parts 70 mm long, connection front plate-display / câble plat à 20 fils avec fiches, longueur 70 mm, connexion plaque de base - écran
X1	033 04 84 00	Erdklemmenleiste /ground terminal / borne de terre
X2	073 03 12 00	Schweißstromanschluß Plus, kpl. / welding current connection plus, compl. / raccord courant de soudage plus cpl.
X3	073 03 12 00	Schweißstromanschluß Minus, kpl. / welding current connection minus, compl./ raccord courant de soudage minus cpl.
X4	035 02 03 10	6pol. Gehäuse für Flachsteckhülsen / 6 pole housing for receptacle / embase à 6 pôles pour alvéole
	035 02 00 31	Flachsteckhülse 6,3x1 5 Stück / receptacle 6,3x1, 5 off / alvéole 6,3x1, 5 pcs.
1X4	an Pumpe	6pol. Gehäuse für Flachstecker /6 pole housing for flat plug / embase à 6 pôles pour fiche plate
	an Pumpe	Flachstecker 6,3x1 6 Stück / flat plug 6,3x1, 6 off / flat plug 6,3x1, 6 pcs.
X5	010 09 18 26	40pol. Steckdose, Kofferanschluß, Anbaugehäuse / 40 pole socket, CK-connection, attached housing / prise à 40 pôles, raccord dévidoir, embase

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Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	010 09 18 24	40pol. Buchsenteil / 40 pole bush part / douille à 40 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0mm² 35 Stück / crimp bush 0,75-1,0mm² 35 off / douille crimp 0,75-1,0mm² 35 pcs.
	010 09 18 08	Codierbuchse 4 Stück /coding bush, 4 off / douille de codage, 4 pcs.
X6	010 09 13 01	15pol. Steckdose, Tachoanschluß, Anbaugehäuse
	010 09 18 29	15pol. Buchsenteil 15 pole bush part / douille à 15 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0mm² 11 Stück / crimp bush 0,75-1,0mm² 11 off / douille crimp 0,75-1,0mm² 11pcs.
	010 09 18 08	Codierbuchse (bei C1 und A5) 2 Stück / coding bush 7 (for C1 and A5), 2 off / douille de codage (pour C1 et A5), 2 pcs.
X7	010 09 18 52	72pol. Steckdose, Anbaugehäuse m. Klappdeckel / 72 pole socket, attached housing with hinged cover/ prise à 72 pôles, embase avec couvercle à charnière
	010 09 19 03	72pol. Buchsenteil / 72 pole bush part / douille à 72 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0mm² 50 Stück / crimp bush 0,75-1,0mm² 50 off / douille crimp 0,75-1,0mm² 50pcs.
	010 09 18 08	Codierbuchse 4 Stück / coding bush 4 off / douille de codage, 4 pcs.
		Gegenstecker für X7: / counter socket for X7 / prise pour X7
	010 09 19 05	72pol. Stecker, Tüllengehäuse / 72 pole plug, hood / fiche à 72 pôles, capot
	010 09 19 04	72pol. Stiftteil /72 pole multiple plug / fiche multiple à 72 pôles
	010 09 18 03	Crimpstift 0,75-1,0mm² / crimp pin 0,75-1,0mm² / pin 0,75-1,0mm²
	010 09 18 07	Codierstift 4 Stück / coding pin, 4 off / cheville de codage, 4 pcs.
		Option: Steckdose für PC / Drucker-Anschluß / Option: socket for PC/printer connection / Option: prise pour PC / connection imprimante
X8-1	010 11 02 76	9pol. D-Sub-Stecker an Schnittstellenkarte / 9 pole plug on interface card / fiche à 9 pôles sur carte d'interface
X8-2	010 11 02 75	15pol. D-Sub-Stecker an Schnittstellenkarte /15 pole plug on interface card / fiche à 15 pôles sur carte d'interface
	038 07 14 00	Kabel 4x2x0,2mm² / cable 4x2x0,2mm² / câble 4x2x0,2mm²
1X8-1	010 11 02 77	9pol. D-Sub-Steckdose / 9 pole socket / prise à 9 pôles
		Option: Steckdose für serielle Kopplung m. Roboter/Option: socket for serial coupling with robot / Option: prise pour accouplement sériel avec robot
X8-3	010 11 02 75	15pol. D-Sub-Stecker an Schnittstellenkarte / 15 pole plug on interface card / fiche à 15 pôles sur carte d'interface
	038 07 14 00	Kabel 4x2x0,2mm² / cable 4x2x0,2mm² / câble 4x2x0,2mm²
1X8-3	010 11 02 77	9pol. D-Sub-Steckdose / 9 pole socket prise à 9 pôles
X9	010 06 01 00	3pol. Steckdose für CO_2-Vorwärmer / 3 pole socket for CO_2 preheater / prise à 3 pôles pour rechauffeur CO_2
		Im Kartenrack: in card rack / dans le rack à cartes
X10	auf Grundpl.	11pol. Stiftleiste (sek. Steuertrafo) / 11 pole male connector (sec. control transf.) connecteur mâle à 11 pôles (transformateur secondaire de commande)
1X10	011 03 77 00	11pol. Buchsenleiste / 11 pole multiple plug / prise multiple à 11 pôles
X11	auf Grundpl.	17pol. Stiftleiste (Steuerung/42V~) / 17 pole male connector (control/42V~) / connecteur mâle à 17 pôles (commande/42V~)
1X11	011 03 78 00	17pol. Buchsenleiste / 17 pole multiple plug / prise multiple à 17 pôles

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Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
X12	auf Grundpl./	5pol. Stiftleiste (sek. Steuertrafo) / 5 pole male connector (sec. control transf.) on base plate/sur plaque d base connecteur mâle à 5 pôles (transformateur secondaire de commande)
1X12	011 03 74 00	5pol. Buchsenleiste / 5 pole multiple plug / prise multiple à 5 pôles
X13	auf Grundpl.	2pol. Stiftleiste (Abschirmung f. X17 u. X18) / 2 pole male connector (protection for X17 and X 18) connecteur mâle à 2 pôles (protection pour X17 et X18)
1X13	011 03 67 11	2pol. Buchsengehäuse 5,08 / 2 pole bushing housing 5,08 / embase à douille à 2 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 2 Stück / crimp bush 0,2-0,8mm², tinned, 2 off / douille 0,2-0,8mm², étamée, 2 pcs.
X14	auf Grundpl.	8pol. Stiftleiste (Motor 1, Koffer) / 8 pole male connector (motor 1, CK) / connecteur mâle à 8 pôles (moteur 1, coffret CK)
1X14	011 03 76 00	8pol. Buchsenleiste / 8 pole multiple plug / prise multiple à 8 pôles
X15	auf Grundpl.	8pol. Stiftleiste (Motor 2, Pistole) / 8 pole male connector (motor 2, torch) / connecteur mâle à 8 pôles (moteur 2, torche)
1X15	011 03 76 00	8pol. Buchsenleiste / 8 pole multiple plug / prise multiple à 8 pôles
X16	auf Grundpl.	2pol. Stiftleiste (Stromsensor) / 2 pole male connector (current sensor) / connecteur mâle à 2 pôles (détecteur courant)
1X16	011 03 67 11	Buchsengehäuse 5,08 / 2 pole bushing housing 5,08 / embase à douille à 2 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 2 Stück / crimp bush 0,2-0,8mm², tinned, 2 off / douille 0,2-0,8mm², étamée, 2 pcs.
X17	auf Grundpl.	6pol. Stiftleiste (Ansteuerung Kaskade R) / 6 pole male connector (control cascade R) / connecteur mâle à 6 pôles (commande cascade R)
1X17	011 03 67 10	6pol. Buchsengehäuse 5,08 / 6 pole bushing housing 5,08 / embase à douille à 6 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 6 Stück / crimp bush 0,2-0,8mm², tinned, 6 off / douille 0,2-0,8mm², étamée, 6 pcs.
2X17	011 03 67 17	4pol. Buchsengehäuse 5,08 / 4 pole bushing housing 5,08 / embase à douille à 4 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 4 Stück / crimp bush 0,2-0,8mm², tinned, 4 off / douille 0,2-0,8mm², étamée, 4 pcs.
X18	auf Grundpl.	6pol. Stiftleiste (Ansteuerung Kaskade L) / 6 pole male connector (control cascade L) / connecteur mâle à 6 pôles (commande cascade L)
1X18	011 03 67 10	6pol. Buchsengehäuse 5,08 / 6 pole bushing housing 5,08 / embase à douille à 6 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 6 Stück / crimp bush 0,2-0,8mm², tinned, 6 off / douille 0,2-0,8mm², étamée, 6 pcs.
2X18	011 03 67 17	4pol. Buchsengehäuse 5,08 / 4 pole bushing housing 5,08 / embase à douille à 4 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 4 Stück / crimp bush 0,2-0,8mm², tinned, 4 off / douille 0,2-0,8mm², étamée, 4 pcs.
X19	auf Grundpl.	3pol. Stiftleiste (Versorgung f. A15)/ 3 pole male connector (supply for A15) / connecteur mâle à 3 pôles (alimentation pour A15))

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Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
1X19	011 03 67 12	3pol. Buchsengehäuse 5,08 / 2 pole bushing housing 5,08 / embase à douille à 2 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 3 Stück/ crimp bush 0,2-0,8mm², tinned, 3 off / douille 0,2-0,8mm², étamée, 3 pcs.
X20	auf Grundpl.	34pol. Stiftleiste (f. Kabel W1 an Bedienung) / 34 pole male connector (for cable W1 on operation panel) connecteur mâle à 34 pôles (pour câble W1 sur panneau d'opération)
X21	auf Grundpl.	2pol. Stiftleiste (-21V f. Ferneinschub) /2 pole male connector (-21V f. r) / connecteur mâle à 2 pôles (moteur 2, torch)
X22	auf Grundpl.	3pol. Stiftleiste (+15V, -15V, GND) /3 pole male connector (+15V, -15V, GND)/ connecteur mâle à 3 pôles (+15V, -15V, GND)
X23	011 03 79 00	4pol. Buchsenleiste Kabel 3 x 0,5 mm² /4 pole multiple plug cable 3 x 0,5 mm² / prise multiple à 4 pôles câble 3 x 0,5 mm²
1X23	028 09 02 52	6pol. Steckdose für Nahtsuchen / 6 pole socket for seam tracking / prise à 6 pôles p. suivi de joint Option: Steckdose für Impulssynchronisation / Option: socket f. pulse synchronization/ Option: prise p. synchronisation d'impulsions
X24	010 11 02 76	9pol. D-Sub-Stecker / 9 pole D-sub plug / fiche D à 9 pôles
	038 07 11 00	Kabel 2x2x0,2mm² / cable 2x2x0,2mm² / câble 2x2x0,2mm²
1X24	010 11 02 77	9pol. D-Sub-Steckdose /9 pole D-sub socket / prise D à 9 pôles
X26	auf A1	6pol. Leiterplattenklemme / 6 pole pc board connection clamp / bornier de raccordement du circuit imprimé à 6 pôles
X27	auf A1	6pol. Leiterplattenklemme / 6 pole pc board connection clamp / bornier de raccordement du circuit imprimé à 6 pôles
X29	an A16	2pol. Buchsenleiste / 2 pole multiple plug / prise multiple à 2 pôles
X34	035 02 03 10	6pol. Gehäuse für Flachsteckhülsen / 6 pole housing for receptacles / embase à 6 pôles pour alvéole
	035 02 00 31	Flachsteckhülse 6,3x1 5 Stück / receptacle 6,3x1, 5 off / alvéole 6,3x1, 5 pcs.
1X34	035 02 03 11	6pol. Gehäuse für Flachstecker, an M2 / 6 pole housing for flat plug, at M2 / embase à 6 pôles pour fiche plate, sur M2
	035 02 00 41	Flachstecker 6,3x1 6 Stück / flat plug 6,3x1, 6 off / fiche plate 6,3x1, 6 pcs.
X35	035 02 00 91	4pol. Gehäuse für Flachsteckhülsen /4 pole housing for receptacles / embase à 4 pôles pour alvéoles
	035 02 00 31	Flachsteckhülse 6,3x1 4 Stück / receptacle 6,3x1, 4 off / alvéole 6,3x1, 4 pcs.
1X35	035 02 00 42	4pol. Gehäuse für Flachstecker, an T1/ 4 pole housing for receptacles, on T1 / embase à 8 pôles pour alvéoles, sur T1
	035 02 00 41	Flachstecker 6,3x1 4 Stück / flat plug 6,3x1, 4 off / fiche plate 6,3x1, 4 pcs.
X36	035 02 03 27	8pol. Gehäuse für Flachstecker / 8 pole housing for flat plug / embase à 8 pôles pour fiche plate
	035 02 00 41	Flachstecker 6,3x1 8 Stück / flat plug 6,3x1, 8 off / fiche plate 6,3x1, 8 pcs.
1X36	035 02 03 28	8pol. Gehäuse für Flachsteckhülsen, an V3 / 8 pole housing for receptacles, on V3 / embase à 8 pôles pour alvéoles, sur V3
	035 02 00 31	Flachsteckhülse 6,3x1 8 Stück / receptacle 6,3x1, 8 off / alvéole 6,3x1, 8 pcs.
X37	035 02 00 22	Flachsteckhülse 6,3 mm, isoliert, 2 Stück / receptacle 6,3 mm, insulated, 2 off / alvéole 6,3 mm, isolée, 2 pcs.
1X37		Flachstecker, an F20 / flat plug, on F20 / fiche plate, sur F20
X38	035 02 00 91	4pol. Gehäuse für Flachsteckhülsen/ 4 pole housing for receptacles / embase à 4 pôles pour alvéoles
	035 02 00 31	Flachsteckhülse 6,3x1 4 Stück / receptacle 6,3x1, 4 off / alvéole 6,3x1, 4 pcs.
1X38	035 02 00 42	4pol. Gehäuse für Flachstecker, an F22/F23 / 4 pole housing for flat plug, on F22/F23 / embase à 4 pôles pour fiche plate, sur F22/F23

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Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	035 02 00 41	Flachstecker 6,3x1 4 Stück / flat plug 6,3x1, 4 off / fiche plate 6,3x1, 4 pcs.
		Auf Anschlußkarte: on connection card / sur carte de connexions
X40	Anschlußkarte	4pol. Stiftleiste (Zwischenkr.- u. Schweißspg.) /4 pole male connector (intermediate circuit and welding voltage) /connecteur mâle à 10 pôles (circuit intermédiaire et tension de soudage)
1X40	011 03 67 06	4pol. Buchsengehäuse 3,96 / 4 pole bushing housing 3,96 / embase à douille à 4 pôles 3,96
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 4 Stück / crimp bush 0,2-0,8mm², tinned, 4 off / douille 0,2-0,8mm², étamée, 4 pcs.
X41	Anschlußkarte	13pol. Stiftleiste (Koffer) / 13 pole male connector (CK) / connecteur mâle à 13 pôles (coffret CK)
1X41	011 03 67 08	9pol. Buchsengehäuse 3,96 (1-9) / 9 pole bushing housing 3,96 (1-9) / embase à douille à 9 pôles 3,96 (1-9)
	011 03 67 06	4pol. Buchsengehäuse 3,96 (10-13) / 4 pole bushing housing 3,96 (10-13) / embase à douille à 4 pôles 3,96 (10-13)
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 13 Stück / crimp bush 0,2-0,8mm², tinned, 13 off / douille 0,2-0,8mm², étamée, 13 pcs.
X42	Anschlußkarte	16pol. Stiftleiste (I/O intern) / 16 pole male connector (I/O internal) / connecteur mâle à 16 pôles (entrée/sortie interne)
1X42	011 03 67 01	12pol. Buchsengehäuse 3,96 (1-12) / 12 pole bushing housing 3,96 (1-12) / embase à douille à 12 pôles 3,96 (1-12)
	011 03 67 06	4pol. Buchsengehäuse 3,96 (13-16) / 4 pole bushing housing 3,96 (13-16) / embase à douille à 4 pôles 3,96 (13-16)
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 12 Stück / crimp bush 0,2-0,8mm², tinned, 12 off / douille 0,2-0,8mm², étamée, 12 pcs.
X43	Anschlußkarte	21pol. Stiftleiste (Peripherie) / 10 pole male connector (peripheral equipment) / connecteur mâle à 10 pôles (périphérie))
1X43	011 03 67 01	12pol. Buchsengehäuse 3,96 (1-12) / 12 pole bushing housing 3,96 (1-12) / embase à douille à 12 pôles 3,96 (1-12)
	011 03 67 08	9pol. Buchsengehäuse 3,96 (13-21)/ 9 pole bushing housing 3,96 (13-21) / embase à douille à 9 pôles 3,96 (13-21)
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 21 Stück / crimp bush 0,2-0,8mm², tinned, 21 off / douille 0,2-0,8mm², étamée, 21 pcs.
X44	Anschlußkarte	15pol Stiftleiste (µP-Peripherie) / 15 pole male connector (µP peripheral equipment) / connecteur mâle à 15 pôles (µP périphérie)
1X44	011 03 67 09	10pol. Buchsengehäuse 3,96 (1-10) / 10 pole bushing housing 3,96 (1-10 / embase à douille à 10 pôles 3,96 (1-10)
	011 03 67 07	5pol. Buchsengehäuse 3,96 (11-15) / 5 pole bushing housing 3,96 (11-15) / embase à douille à 5 pôles (11-15)
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 12 Stück / crimp bush 0,2-0,8mm², tinned, 12 off / douille 0,2-0,8mm², étamée, 12 pcs.
X45	Anschl.karte	9pol. Stiftleiste (Reserve-Ein/Ausgänge) / 9 pole male connector (reserve inputs/ outputs) / connecteur mâle à 9 pôles (réserve entrées/sorties)
X46	Anschlußkarte	13pol. Stiftleiste (Fernregler) / 13 pole male connector (remote controller) / connecteur mâle à 13 pôles (commande à distance)
1X46	011 03 67 08	9pol. Buchsengehäuse 3,96 (1-9) / 9 pole bushing housing 3,96 (1-9) / embase à douille à 9 pôles 3,96 (1-9)
	011 03 67 06	4pol. Buchsengehäuse 3,96 (10-13) / 4 pole bushing housing 3,96 (10-13) / embase à douille à 4 pôles 3,96 (10-13)
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 13 Stück / crimp bush 0,2-0,8mm², tinned, 13 off / douille 0,2-0,8mm², étamée, 13 pcs.
X47	Anschlußkarte	10pol Stiftleiste (f. Roboter) / 10 pole male connector (for robot) /

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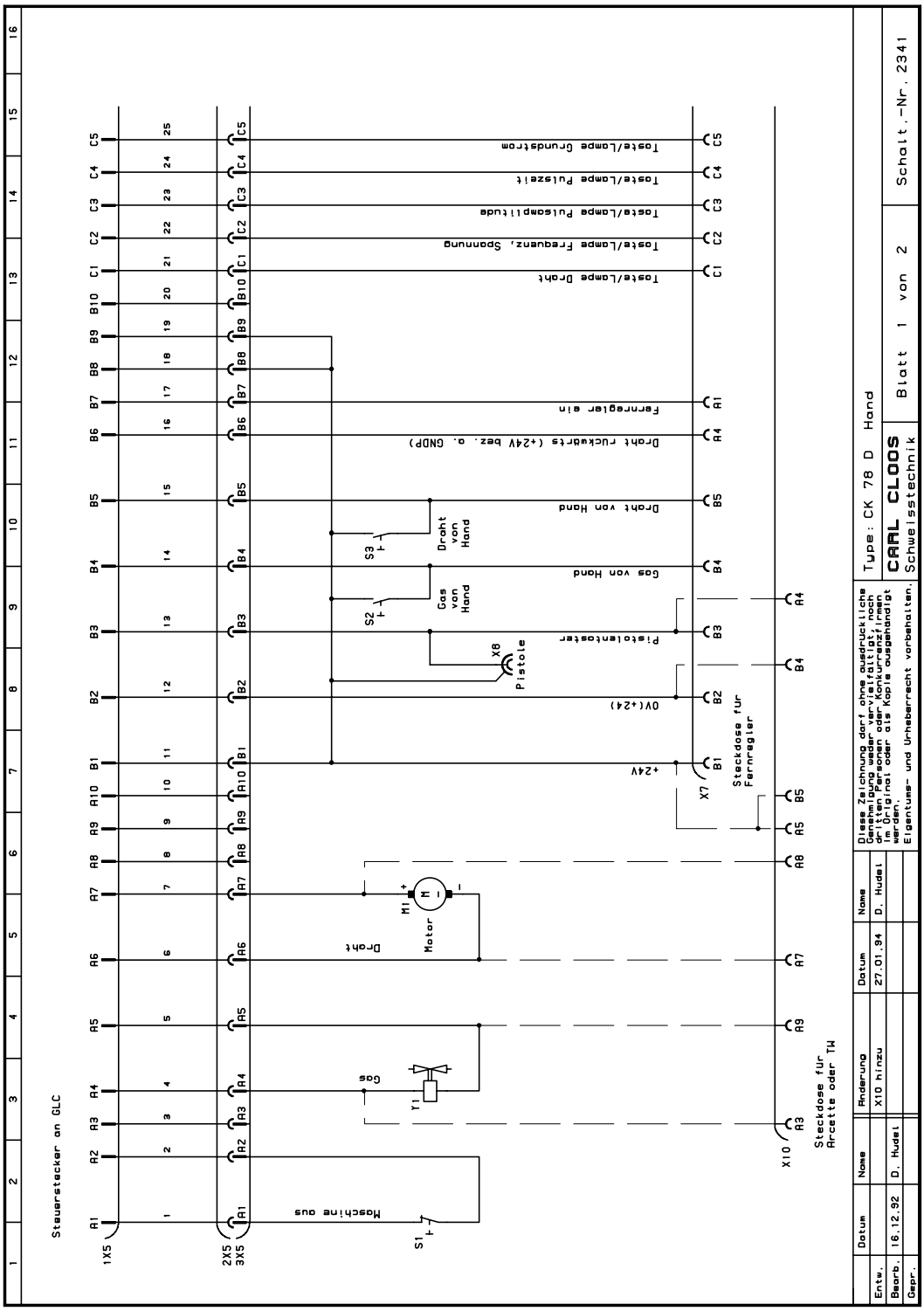
Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
		connecteur mâle à 10 pôles (pour robot)
1X47	011 03 67 09	10pol. Buchsengehäuse 3,96 / 10 pole bushing housing 3,96 / embase à douille à 10 pôles 3,96
	011 03 67 02	Crimpbuchse 0,2-0,8mm², verzinnt 10 Stück / crimp bush 0,2-0,8mm², tinned, 10 off / douille 0,2-0,8mm², étamée, 10 pcs.
X60	033 04 26 42	4-Leiter-Durchgangsklemme / 4 fold straight clamp / borne de transit quadruple
X61	033 04 26 42	4-Leiter-Durchgangsklemme / 4 fold straight clamp / borne de transit quadruple
	033 04 26 44	Abschlußplatte / cover plate / couvercle
Z1	033 35 19 00	Netzentstörfilter 500V/3x32A / interference suppression filter 500V/3x32V / filtre antiparasite 500V/3x32V
		Option: Netzteil für Duo-Drive / Option: power part for Duo-Drive/ Option: bloc d'alimentation pour Duo-Drive
	033 17 90 00	Einbausatz CDD mit 30m/min. kpl. für QUINTO Profi V 1.70 bestehend aus: Installation kit CDD with 30m/min. compl. for QUINTO Profi V1.70, composed of Kit de montage CDD aved 30m/min. cpl. pour QUINTO Profi V1.70, composé de
A3	033 33 31 50	Motorregelung 4Q für Duo-Drive/ motor regulation 4Q for Duo-Drive/ réglage moteur 4Q pour Duo-Drive
C7	021 01 13 06	Elko 3300µF/50V/ Elko 3300µF/50V/ Elko 3300µF/50V
C8	021 01 13 06	Elko 3300µF/50V/ Elko 3300µF/50V/ Elko 3300µF/50V/
M3	022 04 41 00	Axiallüfter 24V=/3,8W/ axial fan 24V=/3.8W / ventilateur axial 24V=/3.8W
	022 04 41 01	Schutzgitter für Lüfter/ protection grid for fan / grille de protection p. ventilateur
V4	028 03 23 00	Brückengleichrichter 3A/200V/bridge rectifier 3A/200V/ redresseur pont 3A/200V
	095 01 02 05	Befestigungssockel/ mounting base / base de fixation
	095 01 02 07	Kabelbinder 179mm/ cable binder 179 mm / support à câbles 179 mm
	095 01 02 06	Kabelbinder 102mm/ cable binder 102 mm / support à câbles 102 mm
	033 17 86 00	Einbausatz Motorstromüberwachung kpl. für QUINTO Profi SD bestehend aus: Installation kit motor current monitoring compl. f. QUINTO Profi SD, composed of: Kit de montage surveillance courant moteur cpl. p. QUINTO Profi SD, composé de:
A21	033 11 51 00	Steuerplatte Motorstromüberwachung / control board motor current monitoring / platine surveillance courant moteur
1X22	011 03 67 12	3pol. Buchsengehäuse / 3 pole bushing housing / embase à douille à 3 pôles
	011 03 67 02	Crimpbuchse 0,2-0,8mm²,verzinnt / crimp bush 0,2-0,8mm², tinned / douille 0,2-0,8mm², étamée
2X22	011 03 67 10	6pol. Buchsengehäuse / 6 pole bushing housing / embase à douille à 6 pôles
	011 03 67 02	Crimpbuchse 0,2-0,8mm²,verzinnt / crimp bush 0,2-0,8mm², tinned / douille 0,2-0,8mm², étamée
	010 11 02 63	Abstandshalter 9,5mm für Platine/ distance piece 9.5 mm for PCB / écarteur 9,5 mm pour platine
	028 10 01 35	EPROM-Satz Profi, deutsch / set of EPROMs Profi, German / jeu d'EPROMs Profi, allemand
	028 10 01 34	EPROM-Satz Profi, englisch / set of EPROMs Profi, English / jeu d'EPROMs Profi, anglais
	028 10 01 33	EPROM-Satz Profi, französisch / set of EPROMs Profi, French / jeu d'EPROMs Profi, français
	028 10 01 47	EPROM-Satz Profi, italienisch / set of EPROMs Profi, Italian / jeu d'EPROMs Profi, italien
	028 10 01 53	EPROM-Satz Profi, spanisch / set of EPROMs Profi, Spanish / jeu d'EPROMS Profi, espagnol
	028 10 01 88	EPROM-Satz Profi, niederländisch / set of EPROMs Profi, Dutch /

Elektrische Stückliste - Schalt.-Nr. 2527/16.07.96 für GLC 503 QUINTO Profi/Electrical parts list - diagram No. 2527/16.07.96 for GLC QUINTO Profi /Liste des pièces électriques - schéma no. 2527/16.07.96 pour GLC QUINTO Profi

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
		jeu d'EPROMS Profi, néerlandais
	028 10 01 89	EPROM-Satz Profi, dänisch / set of EPROMs Profi, Danish / jeu d'EPROMS Profi, danois
	028 10 01 90	EPROM-Satz Profi, rumänisch / set of EPROMs Profi, Rumanian / jeu d'EPROMS Profi, roumain
	028 10 01 40	EPROM-Satz Profi SD, deutsch /set of EPROMs Profi SD, German / jeu d'EPROMs Profi SD, allemand
	028 10 01 41	EPROM-Satz Profi SD, englisch /set of EPROMs Profi, English / jeu d'EPROMs Profi, anglais
	028 10 01 42	EPROM-Satz Profi SD, französisch / set of EPROMs Profi, French / jeu d'EPROMs Profi, français
	028 10 01 45	EPROM-Satz Profi SD, italienisch /set of EPROMs Profi, Italian / jeu d'EPROMs Profi, italien
	028 10 01 54	EPROM-Satz Profi SD, spanisch / set of EPROMs Profi, Spanish / jeu d'EPROMs Profi, espagnol
	028 10 01 91	EPROM-Satz Profi SD, niederländisch / set of EPROMs Profi, Dutch / jeu d'EPROMs Profi, néerlandais
	028 10 01 92	EPROM-Satz Profi SD, dänisch /set of EPROMs Profi, Danish / jeu d'EPROMs Profi, danois
	028 10 01 93	EPROM-Satz Profi SD, rumänisch / set of EPROMs Profi, Rumanian / jeu d'EPROMs Profi, roumain
	028 10 03 01	EPROM-Satz Profi seriell, deutsch / set of EPROMs Profi SD serial, German jeu d'EPROMs Profi SD sériel, allemand
	028 10 03 02	EPROM-Satz Profi seriell, englisch /set of EPROMs Profi SD serial, English jeu d'EPROMs Profi SD sériel, anglais
	028 10 03 03	EPROM-Satz Profi seriell, französisch / set of EPROMs Profi SD serial, French jeu d'EPROMs Profi SD sériel, français
	028 10 03 04	EPROM-Satz Profi seriell, italienisch / set of EPROMs Profi SD serial, Italian jeu d'EPROMs Profi SD sériel, italien
	028 10 03 05	EPROM-Satz Profi seriell, spanisch / set of EPROMs Profi SD serial, Spanish jeu d'EPROMs Profi SD sériel, espagnol
	028 10 03 06	EPROM-Satz Profi seriell, niederländisch /set of EPROMs Profi SD serial, Dutch jeu d'EPROMs Profi SD sériel, néerlandais
	028 10 03 07	EPROM-Satz Profi seriell, dänisch /set of EPROMs Profi SD serial, Danish jeu d'EPROMs Profi SD sériel, danois
	028 10 03 08	EPROM-Satz Profi seriell, rumänisch/set of EPROMs Profi SD serial, Rumanian jeu d'EPROMs Profi SD sériel, roumain
	028 10 03 09	EPROM-Satz Profi SD seriell, deutsch / set of EPROMs Profi SD serial, German jeu d'EPROMs Profi SD sériel, allemand
	028 10 03 10	EPROM-Satz Profi SD seriell, englisch /set of EPROMs Profi SD serial, English/ jeu d'EPROMs Profi SD sériel, anglais
	028 10 03 11	EPROM-Satz Profi SD seriell, französisch /set of EPROMs Profi SD serial, French / jeu d'EPROMs Profi SD sériel, français
	028 10 03 12	EPROM-Satz Profi SD seriell, italienisch /set of EPROMs Profi SD serial, Italian / jeu d'EPROMs Profi SD sériel, italien
	028 10 03 13	EPROM-Satz Profi SD seriell, spanisch / set of EPROMs Profi SD serial, Spanish / jeu d'EPROMs Profi SD sériel, espagnol

Schaltbilder CK 78 D Hand /
Circuit diagrams CK 78 D manual / Schémas électrique CK 78 D manuel



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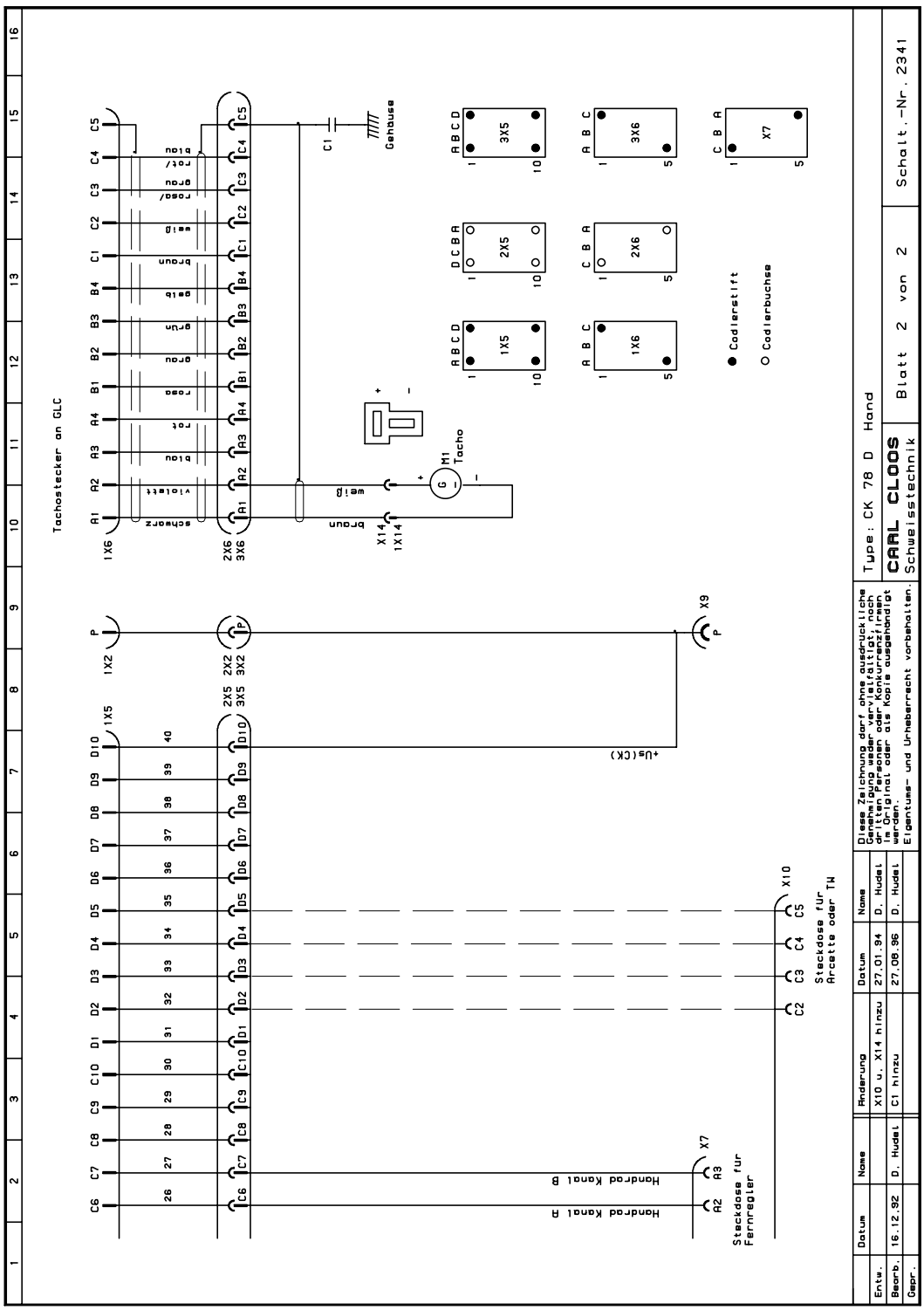
Schalt.-Nr. 2341
Diagram No. 2341
Schéma No. 2341



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Schalt.-Nr. 2341
Diagram No. 2341
Schéma No. 2341

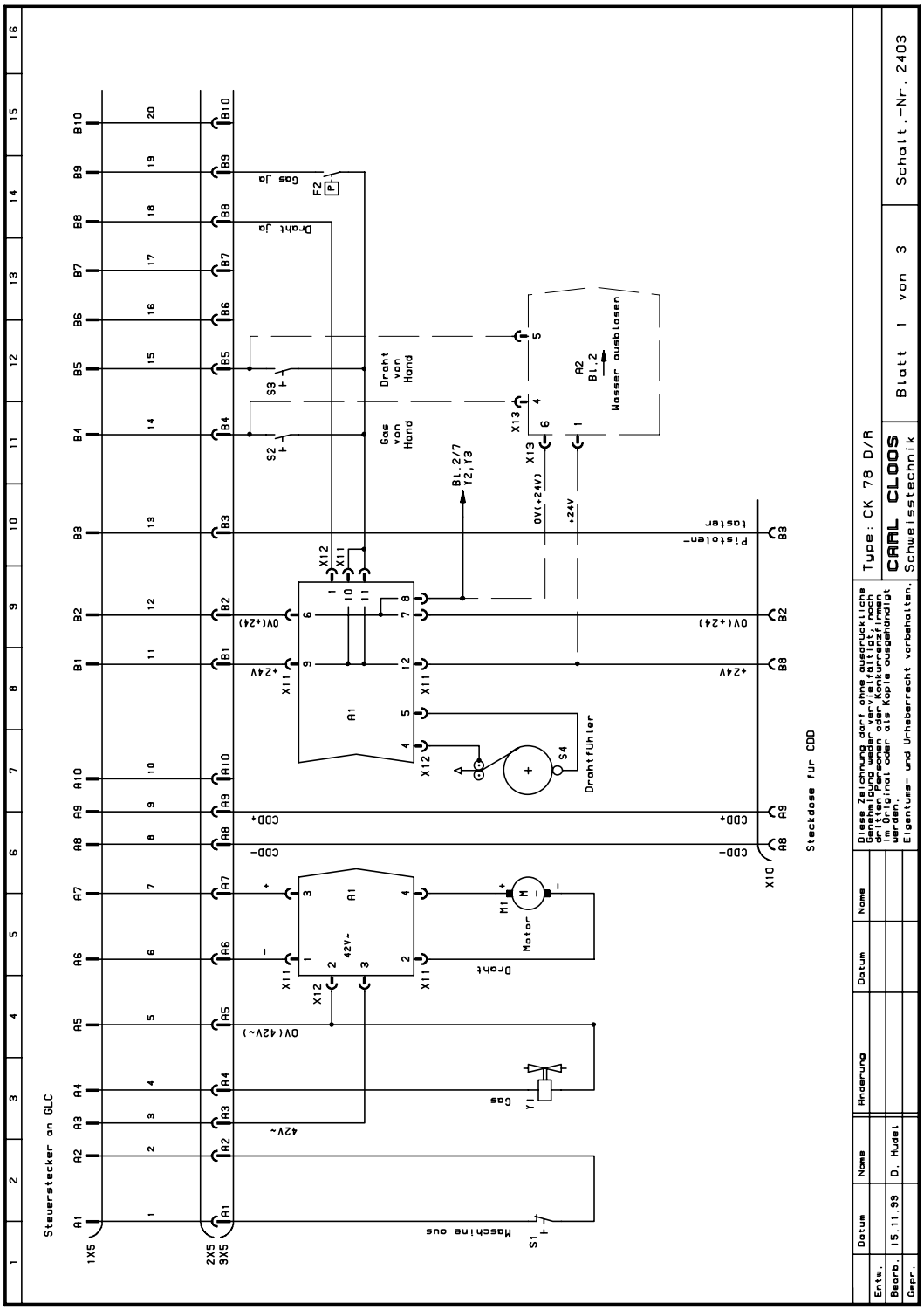
Elektrische Stückliste CK 78 D - Schalt.-Nr. 2341 / Electrical parts list for CK 78 D - diagram No. 2341 / Liste des pièces électriques pour CK 78 D - schéma no. 2341

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	606 30 00 00	CK 78 D Hand, 2+2-Rollenantrieb, 30 mm / CK 78 D manual, 2+2 roller drive, 30 mm / CK 78 D manuel, entraînement à 2+2 galets, 30 mm
	033 17 39 50	Bei Bedarf: Umbausatz 4-Rollenantrieb / if required: conversion kit 4-roller drive/ en cas de besoin: kit d'adaptation entraînement à 4 galets
	650 64 00 80	VSP wassergekühlt 0,8 m lang / cable assembly water-cooled, 0,8 m long / faisceau de câbles refroidi par eau, 0,8 m de longueur
	650 64 02 00	dto., 5,0 m lang / dto. 5,0 m long / dto. 5,0 m de longueur
	650 64 03 00	dto., 10,0 m lang / dto. 10,0 m long / dto. 10,0 m de longueur
	650 64 04 00	dto., 15,0 m lang / dto. 15,0 m long / dto. 15,0 m de longueur
	650 64 05 00	dto., 20,0 m lang / dto. 20,0 m long / dto. 20,0 m de longueur
C1	021 02 02 05	Kondensator 10nF/630V /capacitor 10nF/630V / condensateur 10nF/630V
M1	024 14 28 10	Drahtantriebsmotor kpl. mit DC-Tacho / wire drive motor compl. with CD-tacho / moteur d'entraînement cpl. avec tachymètre à courant continu
S1	008 01 00 19	Taster rot, Maschine aus / red button, machine off / bouton rouge, machine arrêt
S2	008 01 00 21	Drucktaste schwarz, Gas von Hand / black push button, gas by hand / bouton poussoir noir, gaz à la main
	008 01 00 22	Schaltelement 1xÖ, 1xS / switching element 1xÖ, 1xS / élément de circuit 1xÖ, 1xS /
S3	008 01 00 21	Drucktaste schwarz, Draht von Hand / black push button, wire by hand / bouton poussoir noir, gaz à la main
	008 01 00 22	Schaltelement 1xÖ, 1xS / switching element 1xÖ, 1xS / élément de circuit 1xÖ, 1xS /
1X2	073 03 11 00	Schweißstromstecker 95 mm^2 / welding current plug 95 mm^2 / fiche courant de soudage 95 mm^2
2X2	073 03 18 00	Schweißstromkupplung 95 mm^2 / welding current coupling 95 mm^2 / accouplement courant de soudage 95 mm^2
3X2	073 03 19 00	Einbausteckerteil / built-in plug / fiche encastrée
1X5	010 09 18 25	Tüllengehäuse / hood / capot
	010 09 18 23	40pol. Stiftteil / 40 pole multiple plug / fiche multiple à 40 pôles
	010 09 18 03	Crimpstift 0,75-1,0 mm^2, 40 Stück / crimp pin 0,75-1,0 mm^2, 40 off / cheville crimp 0,75-1,0 mm^2, 40 pcs.
	010 09 18 07	Codierstift, 4 Stück / coding pin, 4 off / cheville de codage, 4 pcs.
2X5	010 09 18 25	Tüllengehäuse / hood / capot
	010 09 18 24	40pol. Buchsenteil / 40 pole multiple socket / prise multiple à 40 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0 mm^2, 40 Stück / crimp bush 0,75-1,0 mm^2, 40 off / douille crimp 0,75-1,0 mm^2, 40 pcs.
	010 09 18 08	Codierbuchse, 4 Stück / coding bush, 4 off / douille de codage, 4 pcs.
3X5	010 09 18 26	Anbaugehäuse / attached housing / embase
	010 09 18 23	40pol. Stiftteil / 40 pole multiple plug / fiche multiple à 40 pôles
	010 09 18 03	Crimpstift 0,75-1,0 mm^2, 27 Stück / crimp pin 0,75-1,0 mm^2, 27 off / cheville crimp 0,75-1,0 mm^2, 27 pcs
	010 09 18 07	Codierstift, 4 Stück / coding pin, 4 off / cheville de codage, 4 pcs.
1X6	010 09 13 00	Tüllengehäuse / hood / capot
	010 09 18 28	15pol. Stiftteil / 40 pole multiple plug / fiche multiple à 15 pôles
	010 09 18 05	Crimpstift 0,2 mm^2, 13 Stück / crimp pin 0,2 mm^2, 13 off / cheville crimp 0,2 mm^2, 13 pcs

Elektrische Stückliste CK 78 D - Schalt.-Nr. 2341 / Electrical parts list for CK 78 D - diagram No. 2341 / Liste des pièces électriques pour CK 78 D - schéma no. 2341

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	010 09 18 07	Codierstift (bei C1 und A5), 2 Stück / coding pin (for C1 and A5), 2 off / cheville de codage (pour C1 et A5), 2 pcs.
2X6	010 09 13 00	Tüllengehäuse / hood / capot
	010 09 18 29	15pol. Buchsenteil / 15 pole bush part / douille à 15 pôles
	010 09 18 80	Crimpbuchse 0,14-0,37 mm^2, 13 Stück / crimp bush 0,14-0,37 mm^2, 13 off / douille crimp 0,14-0,37 mm^2, 13 pcs.
	010 09 18 08	Codierbuchse (bei C1 und A5), 2 Stück / coding bush (for C1 and A5), 2 off / douille de codage (pour C1 et A5), 2 pcs.
3X6	010 09 13 01	Anbaugehäuse / hood / capot
	010 09 18 28	15pol. Stiftteil / 15 pole multiple plug / fiche multiple à 15 pôles
	010 09 18 05	Crimpstift 0,2 mm^2, 2 Stück / crimp pin 0,2 mm^2, 2 off / cheville crimp 0,2 mm^2, 2 pcs
	010 09 18 03	Crimpstift 0,75-1,0 mm^2, 1 Stück / crimp pin 0,75-1,0 mm^2, 1 off / cheville crimp 0,75-1,0 mm^2, 1 pcs
	010 09 18 07	Codierstift (bei C1 und A5), 2 Stück / coding pin (for C1 and A5), 2 off / cheville de codage (pour C1 et A5), 2 pcs.
X7	010 09 13 05	Anbaugehäuse mit Klappdeckel / attached housing with hinged cover / embase avec couvercle à charnière
	010 09 18 29	15pol. Buchsenteil / 15 pole bush part / douille à 15 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0 mm^2, 14 Stück / crimp bush 0,75-1,0 mm^2, 14 off / douille crimp 0,75-1,0 mm^2, 14 pcs.
	010 09 18 07	Codierstift (bei C1 und A5), 2 Stück / coding pin (for C1 and A5), 2 off / cheville de codage (pour C1 et A5), 2 pcs
X8	010 03 03 00	Steckdose Pistole Steuerleitung / socket torch control lead / prise conduit de commande de la torche
X9	604 04 06 00	Pistolen Z-Anschluß kpl. / torch Z-connection compl. / raccord Z de la torche cpl.
X14	035 02 03 01	Gehäuse 2pol. für Flachsteckhülse /2 pole housing for flat plug bush / embase à 2 pôles pour douille de connexion plate
	035 02 00 31	Flachsteckhülse 6,3 mm, 2 Stück / flat plug bush 6,3 mm, 2 off / douille de connexion plate 6,3 mm, 2 pcs.
1X14	035 02 03 21	Gehäuse 2pol. für Flachstecker / 2 pole housing for flat plug / embase à 2 pôles pour fiche plate
	035 02 00 41	Flachstecker 6,3 mm, 2 Stück / flat plug 6,3 mm, 2 off / fiche plate 6,3 mm, 2 pcs
Y1	032 02 05 00	Magnetventil für Schutzgas / solenoid valve for shielding gas / vanne magnétique pour gaz protecteur
	033 17 40 00	Option: TW-Steckdose / option: TW-socket / option: prise pour TW
		bestehend aus : / consisting of. / composée de:
X 10	010 09 10 05	Anbaugehäuse mit Klappdeckel / attached housing with hinged cover / embase avec couvercle à charnière
	010 09 18 12	25pol. Buchsenteil / 25 pole bush part / douille à 25 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0 mm^2, 12 Stück / crimp bush 0,75-1,0 mm^2, 12 off / douille crimp 0,75-1,0 mm^2, 12 pcs.

Schaltbilder CK 78 D/R /
Circuit diagrams CK 78 D/R / Schèmas électriques CK 78 D/R



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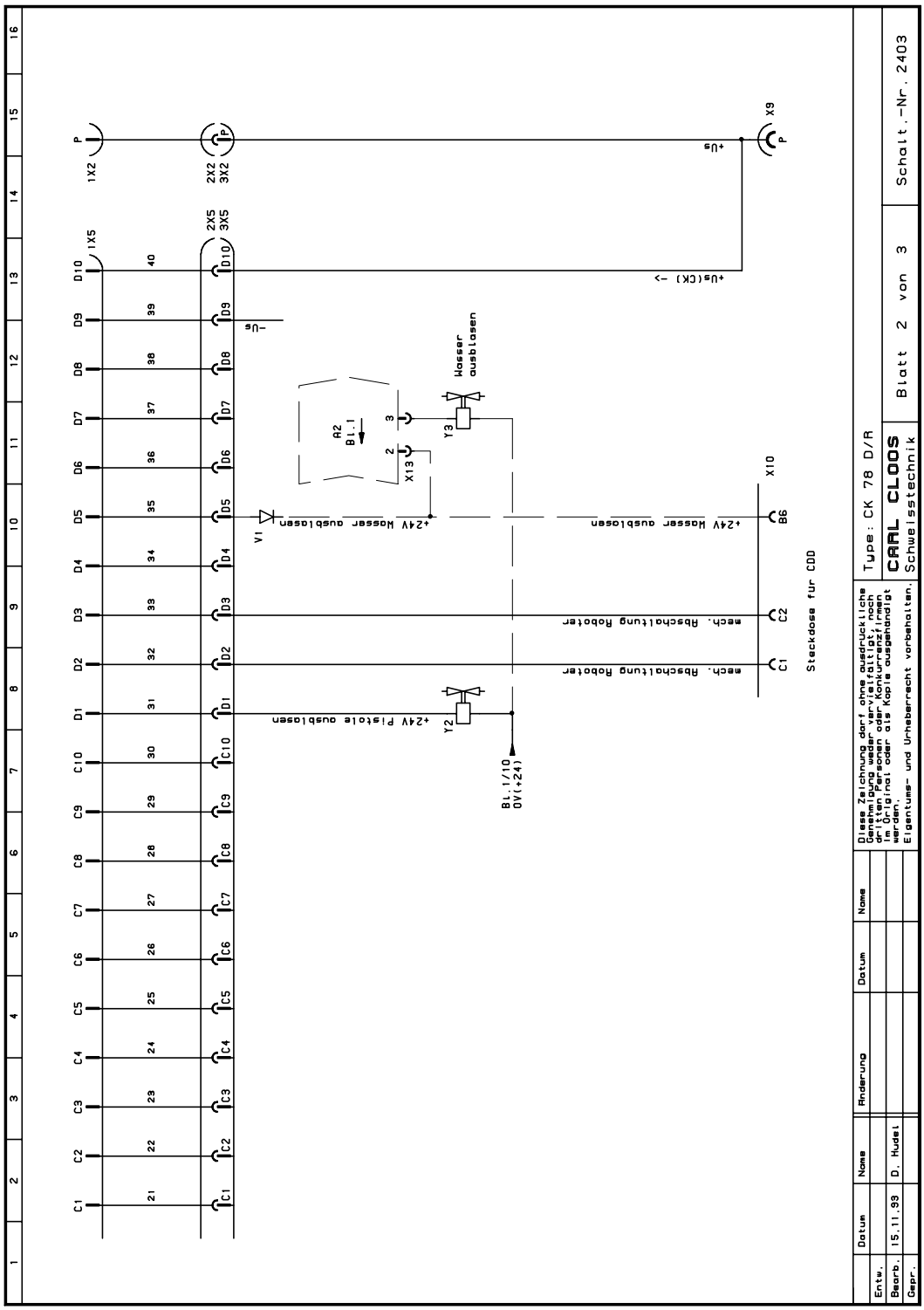
- Schalt.-Nr. 2403
- Diagram No. 2403
- Schèma No. 2403



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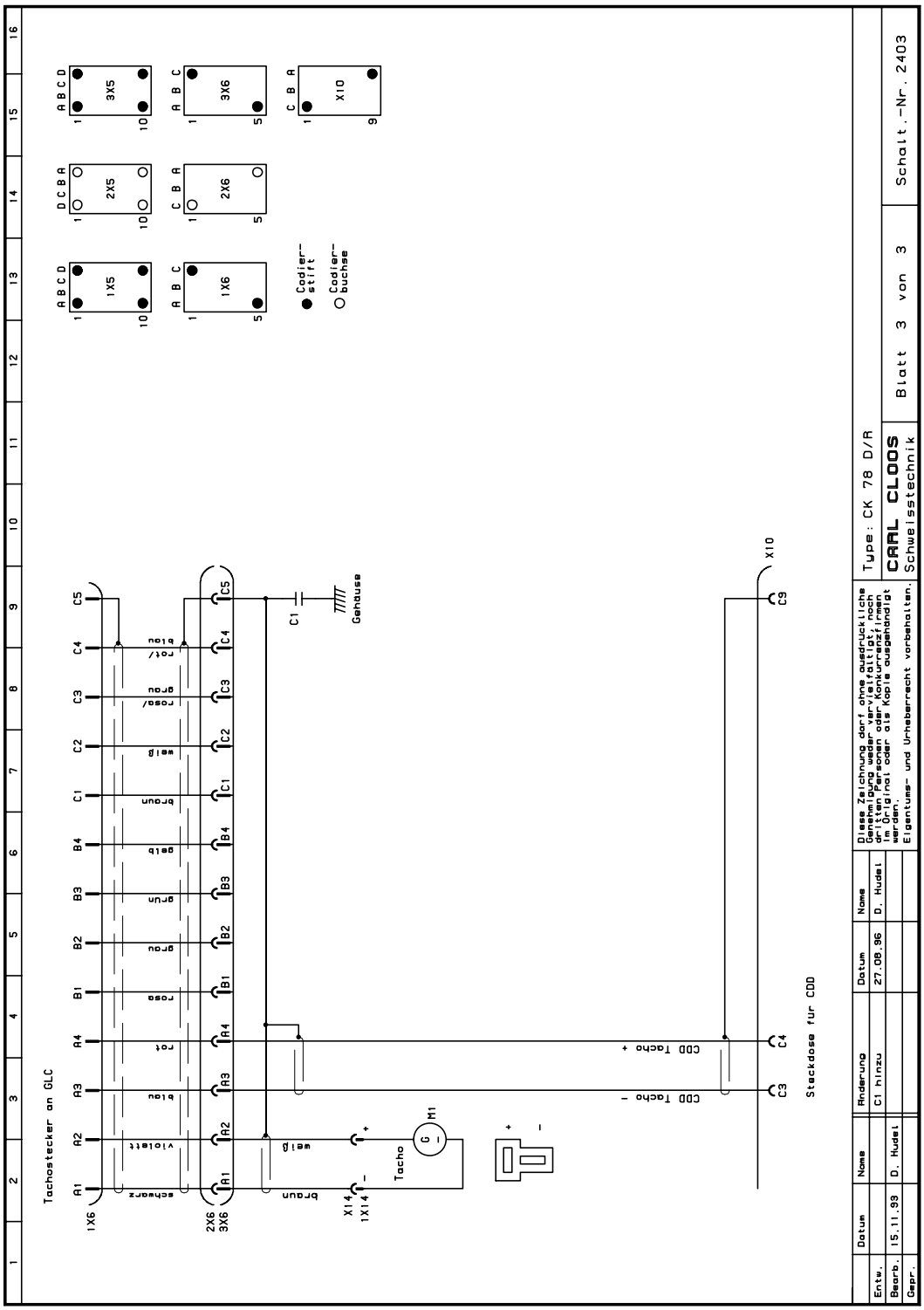
Page 2 de 3 - Schèma No. 2403



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- Schalt.-Nr. 2403
- Diagram No. 2403
- Schèma No. 2403

Elektrische Stückliste für CK 78 D/R - Schalt.-Nr. 2403 /
Electrical parts list for CK 78 D/R - diagram no. 2403 /
Liste des pièces électriques pour CK 78 D/R - schéma no. 2403

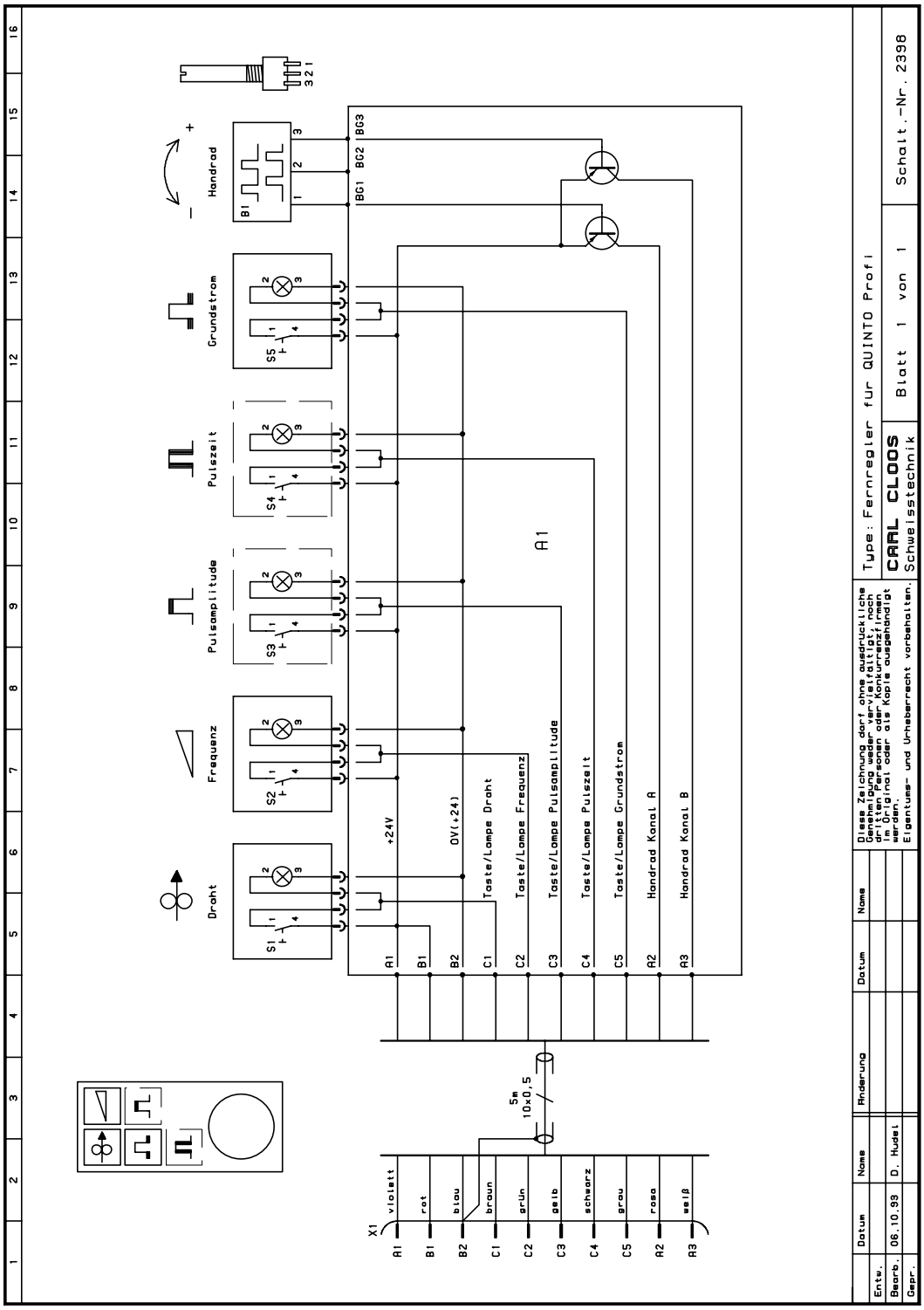
Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	606 27 00 00	CK 78 D/R, 2+2 Rollenantrieb, 30 mm / CK 78 D/R, 2+2 roller drive, 30 mm / CK 78 D/R, systèmed'entraînement à 2+2 galets, 30 mm
	033 17 39 50	Bei Bedarf: Umbausatz 4-Rollenantrieb / If required: conversion kit 4 roller drive En cas de besoin: kit de modification entraînement à 4 galets
	650 64 00 80	VSP wassergekühlt, 0,8 m lang / cable assembly water cooled, 0.8 m / faisceau de câbles refroidi par eau, 0,8 m de longueuer
	650 64 02 00	dto., 5,0 m lang / dto. 5.0 m long / dto. 5,0 m de longueur
	650 64 03 00	dto., 10,0 m lang / dto. 10.0 m long / dto. 10,0 m de longueur
	650 64 04 00	dto., 15,0 m lang / dto. 15.0 m long / dto. 15,0 m de longueur
	650 64 05 00	dto., 20,0 m lang / dto. 20.0 m long / dto. 20,0 m de longueur
A 1	033 24 86 20	Steuerplatte Drahtkontrolle, Schalt.-Nr. 2370 / control board wire control, diagram No. 2370 / platine contrôle de fil, circuit no. 2370
C1	02102 02 05	Kondensator 10nF/630V / capacitor 10nF/630V / condensateur 10nF/630V
F 2	016 07 06 00	Druckschalter für Gaskontrolle / push button for gas control / bouton poussoir pour contrôle gaz
M 1	024 14 28 10	Drahtantriebsmotor kpl. mit DC-Tacho / wire drive motor compl. with DC tacho / moteur entraînement compl. avec tachymètre à courant continu
S 1	008 01 00 19	Taster rot, Maschine aus / red push button, machine off / bouton poussoir rouge, machine arrêt
S 2	008 01 00 21	Drucktaste schwarz, Gas von Hand / black push button, gas by hand / bouton poussoir noir, gaz à main
	008 01 00 22	Schaltelement 1xÖ, 1xS / switching element 1xÖ, 1xS / élement de circuit 1xÖ, 1xS
S 3	008 01 00 21	Drucktaste schwarz, Draht von Hand / black push button, wire by hand / bouton poussoir noir, fil à main
	008 01 00 22	Schaltelement 1xÖ, 1xS / switching element 1xÖ, 1xS / élement de circuit 1xÖ, 1xS
S 4	043 08 18 00	Drahtfühler / wire sensor / détecteur de fil
1 X 2	073 03 11 00	Schweißstromstecker 95 mm^2 / welding current plug 95 mm^2 / fiche courant de soudage 95 mm^2
2 X 2	073 03 18 00	Schweißstromkupplung 95 mm^2 / welding current coupling 95 mm^2 / accouplage du courant de soudage 95 mm^2
3 X 2	073 03 23 00	Einbausteckerteil / built-in male connector / connecteur mâle encastré
1 X 5	010 09 18 25	Tüllengehäuse / hood / capot
	010 09 18 23	40pol. Stiftteil / 40 pole multiple plug / fiche multiple à 40 pôles
	010 09 18 03	Crimpstift 0,75-1,0 mm^2, 40 Stück / crimp pin 0,75-1,0 mm^2, 40 off / cheville crimp 0,75-1,0 mm^2, pcs.
	010 09 18 07	Codierstift, 4 Stück / coding pin, 4 off / cheville de codage, 4 pcs.
2 X 5	010 09 18 25	Tüllengehäuse / hood / capot
	010 09 18 24	40pol. Buchsenteil / 40 pole bush / douille à 40 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0 mm^2, 40 Stück / douille crimp 0,75-1,0 mm^2, 40 off / douille crimp 0,75-1,0 mm^2, 40 Stück
	010 09 18 08	Codierbuchse, 4 Stück / coding bush, 4off / douille de codage, 4 pcs.

Elektrische Stückliste für CK 78 D/R - Schalt.-Nr. 2403 /
Electrical parts list for CK 78 D/R - diagram no. 2403 /
Liste des pièces électriques pour CK 78 D/R - schéma no. 2403

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
3 X 5	010 09 18 26	Anbaugehäuse / housing / embase
	010 09 18 23	40pol. Stiftteil / 40 pole multiple plug / fiche multiple à 40 pôles
	010 09 18 03	Crimpstift 0,75-1,0 mm^2, 40 Stück / crimp pin 0,75-1,0 mm^2, 40 off / cheville crimp 0,75-1,0 mm^2, 40 pcs.
	010 09 18 07	Codierstift, 4 Stück / coding pin, 4 off / cheville de codage, 4 pcs.
1 X 6	010 09 13 00	Tüllengehäuse / hood / capot
	010 09 18 28	15pol. Stiftteil / 15 pôle pole multiple plug / fiche multiple à 15 pôles
	010 09 18 05	Crimpstift 0,2 mm2, 13 Stück / crimp pin 0,2 mm^2, 13 off / cheville crimp 0,2 mm^2, 13 pcs
	010 09 18 07	Codierstift (bei C1 und A5), 2 Stück / coding pin (for C1 and A5), 2 off / cheville de codage (pour C1 et A5), 2 pcs.
2 X 6	010 09 13 00	Tüllengehäuse / hood / capot
	010 09 18 29	15pol. Buchsenteil / 15 pole multiple socket / prise multiple à 15 pôles
	010 09 18 80	Crimpbuchse 0,14-0,37 mm^2, 13 Stück /
	010 09 18 08	Codierbuchse (bei C1 und A5), 2 Stück /
3 X 6	010 09 13 01	Anbaugehäuse / housing / embase
	010 09 18 28	15pol. Stiftteil / 15 pole multiple plug / fiche multiple à 15 pôles
	010 09 18 05	Crimpstift 0,2 mm^2, 4 Stück / crimp pin 0,2 mm^2, 4 off / cheville crimp 0,2 mm^2, 4 pcs
	010 09 18 03	Crimpstift 0,75-1,0 mm^2, 5 Stück / crimp pin 0,75 - 1,0 mm^2, 5 off / cheville crimp 0,75 - 1,0 mm^2, 5 pcs
	010 09 18 07	Codierstift (bei C1 und A5), 2 Stück / coding pin (for C1 and A5) / cheville de codage (pour C1 et A5)
X 9	073 03 10 00	Schweißstromanschluß Plus für Pistole / welding current connection plus for torch / raccord du courant de soudage plus pour torche
X 10	010 09 10 01	Anbaugehäuse / housing / embase
	010 09 18 12	25pol. Buchsenteil / 25 pole multiple socket / prise multiple à 25 pôles
	010 09 18 80	Crimpbuchse 0,14-0,37 mm^2, 2 Stück / crimp bush 0,14-0,37 mm^2, 2 off / douille crimp 0,14-0,37 mm^2, 2 pcs.
	010 09 18 10	Crimpbuchse 0,75-1,0 mm^2, 9 Stück / crimp bush 0,75-1,0 mm^2, 9 off / douille crimp 0,75-1,0 mm^2, 9 pcs.
	010 09 18 07	Codierstift (bei C1 und A9), 2 Stück / coding pin (for C1 and A9) , 2 off / cheville de codage (pour C1 et A9), 2 pcs.
X 11	011 03 67 13	12pol. Buchsengehäuse 5,08 / 12 pole bushing housing 5,08 / embase à douille à 12 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8 mm^2, verzinnt, 1 Stück / crimp bush 0,2-0,8 mm^2, tinned, 1 off/ douille crimp 0,2-0,8 mm^2, étamée, 1pièce.
X 12	011 03 67 10	6pol. Buchsengehäuse 5,08 / 6 pole bushing housing 5,08 / embase à douille à 6 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8 mm^2, verzinnt, 6 Stück / crimp bush 0,2-0,8 mm^2, tinned, 6 off / douille crimp 0,2-0,8 mm^2, étamée, 6 pcs.
X 13	011 03 67 13	12pol. Buchsengehäuse 5,08 / 12 pole bushing housing 5,08 / embase à douille à 12 pôles 5,08

Elektrische Stückliste für CK 78 D/R - Schalt.-Nr. 2403 /
Electrical parts list for CK 78 D/R - diagram no. 2403 /
Liste des pièces électriques pour CK 78 D/R - schéma no. 2403

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	011 03 67 02	Crimpbuchse 0,2-0,8 mm^2, verzinnt, 12 Stück / crimp bush 0,2-0,8 mm^2, tinned, 12 off/ douille crimp 0,2-0,8 mm^2, étamée, 12 pcs.
X 14	035 02 03 01	Gehäuse 2pol. für Flachsteckhülse / 2 pole housing for flat plug bush / embase à 2 pôle pour douille de connexions plates
	035 02 00 31	Flachsteckhülse 6,3, 2 Stück / flat plug bush 6,3 - 2 off /douille de connexions plates
1X14	035 02 03 21	Gehäuse 2pol. für Flachstecker / 2 pole housing for flat plug / embase à 2 pôle pour fiche plate
	035 02 00 41	Flachstecker 6,3, 2 Stück / flat plug 6,3 - 2 off / fiche plate 6,3 - 2 pcs.
Y 1	032 02 05 00	Magnetventil für Schutzgas / solenoid valve for shielding gas / vanne magnétique pour gaz protecteur
Y2	032 02 47 00	Magnetventil für Pistole ausblasen, 24 V / solenoid valve for torch blow-through, 24 V, vanne magnétique pour nettoyage pneumatique de la torche, 24 V Option: Wasser ausblasen / option: water blow-through / option: nettoyage pneumatique à eau
A 2	033 24 88 10	Steuerplatte Wasser ausblasen, Schalt.-Nr. 2372 / control board water blow-through, diagram No. 2372 / platine nettoyage pneumatique à l'eau, circuit no. 2372
V 1	029 06 05 00	Diode 1N4003 / diode 1N4003 / diode 1N4003
Y 3	032 02 47 00	Magnetventil für Wasser ausblasen, 24 V / solenoid valve for water blow-through, 24 V vanne magnétique pour nettoyage pneumatique à l' eau, 24 V



Schaltbild Fernregler	-	Schalt.-Nr. 2398
Circuit diagram: Remote controller	-	Diagram No.2398
Schéma électrique: Régulateur à distance	-	Schéma No. 2398

Elektrische Stückliste Fernregler - Schalt.-Nr. 2398 / Electrical parts list for remote controller - diagram No. 2398 / Liste des pièces électriques pour régulateur à distance - schéma no. 2398

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	038 01 68 00	Fernregler, 5 m lang, für QUINTO Profi, 5 Taster /remote controller, 5 m long, for QUINTO Profi, 5 push buttons / régulateur à distance, longueur 5 m, pour QUINTO Profi, 5 touches
	038 01 68 10	dto., 3 Taster / dto, 3 push buttons / dto. 3 touches
A 1	033 24 92 00	Steuerplatte für Fernregler QUINTO Profi, Schalt.-Nr. 2397 / control board for remote controller QUINTO Profi, diagram No. 2397 / platine pour régulateur à distance QUINTO Profi, schéma no. 2397
B 1	003 19 04 00	Mech. Bit-Generator BG10 / mech. bit-generator BG10 / générateur mécanique à bit BG10
	033 11 53 01	Anschlußplatte für BG10 / connection plate for BG10 / plaque de raccordement pour BG10
	049 01 02 78	Drehknopf / rotary knob / bouto rotatif
S 1	008 01 00 24	Leuchtdrucktaster grün, Schnellbefestigung / illuminated push button, green, quick fastenining / bouton poussoir lumineux, vert, fixation rapide
	020 03 01 08	Glühlampe 24 V / 0,7 W / lamp 24 V/ 0,7 W / ampoule 24 V / 0,7 W
S 2	008 01 00 24	Leuchtdrucktaster grün, Schnellbefestigung / illuminated push button, green, quick fastenining / bouton poussoir lumineux, vert, fixation rapide
	020 03 01 08	Glühlampe 24 V / 0,7 W / lamp 24 V/ 0,7 W / ampoule 24 V / 0,7 W
S 3*	008 01 00 24	Leuchtdrucktaster grün, Schnellbefestigung / illuminated push button, green, quick fastenining / bouton poussoir lumineux, vert, fixation rapide
*	020 03 01 08	Glühlampe 24 V / 0,7 W / lamp 24 V/ 0,7 W / ampoule 24 V / 0,7 W
S 4*	008 01 00 24	Leuchtdrucktaster grün, Schnellbefestigung / illuminated push button, green, quick fastenining / bouton poussoir lumineux, vert, fixation rapide
*	020 03 01 08	Glühlampe 24 V / 0,7 W / lamp 24 V/ 0,7 W / ampoule 24 V / 0,7 W
S 5	008 01 00 24	Leuchtdrucktaster grün, Schnellbefestigung / illuminated push button, green, quick fastenining / bouton poussoir lumineux, vert, fixation rapide
	020 03 01 08	Glühlampe 24 V / 0,7 W / lamp 24 V/ 0,7 W / ampoule 24 V / 0,7 W
X 1	010 09 13 00	Tüllengehäuse /hood / capot
	010 09 18 28	15-pol. Stiftteil / 15 pole multiple plug / fiche multiple à 15 pôles
	010 09 18 04	Crimpstift 0,5 mm^2, 10 Stück / crimp pin 0,5 mm^2, 10 off / cheville crimp 0,5 mm^2, 10 pcs.
	010 09 18 08	Codierbuchse (bei C1 und A5), 2 Stück / coding bush (for C1 and A5), 2 off / douille de codage (pour C1 et A5), 2 pcs.
	051 04 01 00	Gehäuse kpl. (für 3 Taster) / housing cpl. (for 3 push buttons) / embase cpl. (pour 3 touches)
*	051 04 02 00	Gehäuse kpl. (für 5 Taster) / housing cpl. (for 5 push buttons) / embase cpl. (pour 5 touches)
	038 07 30 00	Abgeschirmtes Kabel 10x0,5 mm^2, 5 m / screened cable 10x0,5 mm^2, 5 m / câble protégé 10x0,5 mm^2, 5 m
	035 04 03 00	Reduzierring Pg 13,5-Pg 11 / reducing ring Pg 13,5-Pg 11 / bague de réduction Pg 13,5-Pg 11
	035 03 02 00	Kabelverschraubung Pg 11, 2 Stück / screwed cable gland Pg 11, 2 off / presse-étoupe Pg 11, 2 pcs.
	035 03 02 01	Gegenmutter Pg 11 / counternut Pg 11 / contre-écrou Pg 11
		* Nur bei 038 01 68 00 / only for 038 01 68 00 / seulement pour 038 01 68 00

Belegung der 40poligen Koffersteckdose X5 an GLC 503 QUINTO

A1 ┐ Maschine
   ├ <- aus
A2 ┘

A3 -> 42V~

A4 -> 42V~ Magnetventil ein

A5 -> 0V (42V~)

A6 -> - Motor 1, Koffer

A7 -> + Motor 1, Koffer

A8 -> - Motor 2, Pistole

A9 -> + Motor 2, Pistole

A10 -> +24V, Bremsrelais

B1 -> +24V, bezogen auf GNDST

B2 -> GNDST

B3 <- Pistolentaster

B4 <- Gas von Hand

B5 <- Draht von Hand

B6 <- Draht rückwärts

B7 <- Fernregler ein

B8 <- Draht ja

B9 <- Gas ja

B10

C1 <-> Taste/Lampe Draht

C2 <-> Taste/Lampe Frequenz, Spannung

C3 <-> Taste/Lampe Pulsamplitude

C4 <-> Taste/Lampe Pulszeit

C5 <-> Taste/Lampe Grundstrom

Belegung der 40poligen Koffersteckdose X5 an GLC 503 QUINTO

C6 <- Handrad Kanal A

C7 <- Handrad Kanal B

C8

C9

C10

D1 -> +24V Ausblasen

D2 <- mech. Abschaltung

D3 <- mech. Abschaltung

D4 -> Reserve (Umschaltung CK ... I / CK ... II)

D5 <- Reserve (Wasser ausblasen)

D6 -> Option: + 24 V Wasservorlauf öffnen

D7 <-> Reserve an Peripheriesteckdose

D8

D9 -> -Us

D10 <- +Us (CK)

Belegung der 15poligen Tachosteckdose X6 an GLC 503 QUINTO

A1 <- - Tacho Motor 1, Koffer

A2 <- + Tacho Motor 1, Koffer

A3 <- - Tacho CDD

A4 <- + Tacho CDD

A5

B1 <- Inkr.-Geber Draht, Kanal A

B2 <- Inkr.-Geber Draht, Kanal B

B3 <- GND, Bezugspotential für Drahtüberwachung analog

B4 <- Drahtüberwachung analog

B5

C1 <- GND, Bezugspotential für Gasüberwachung analog

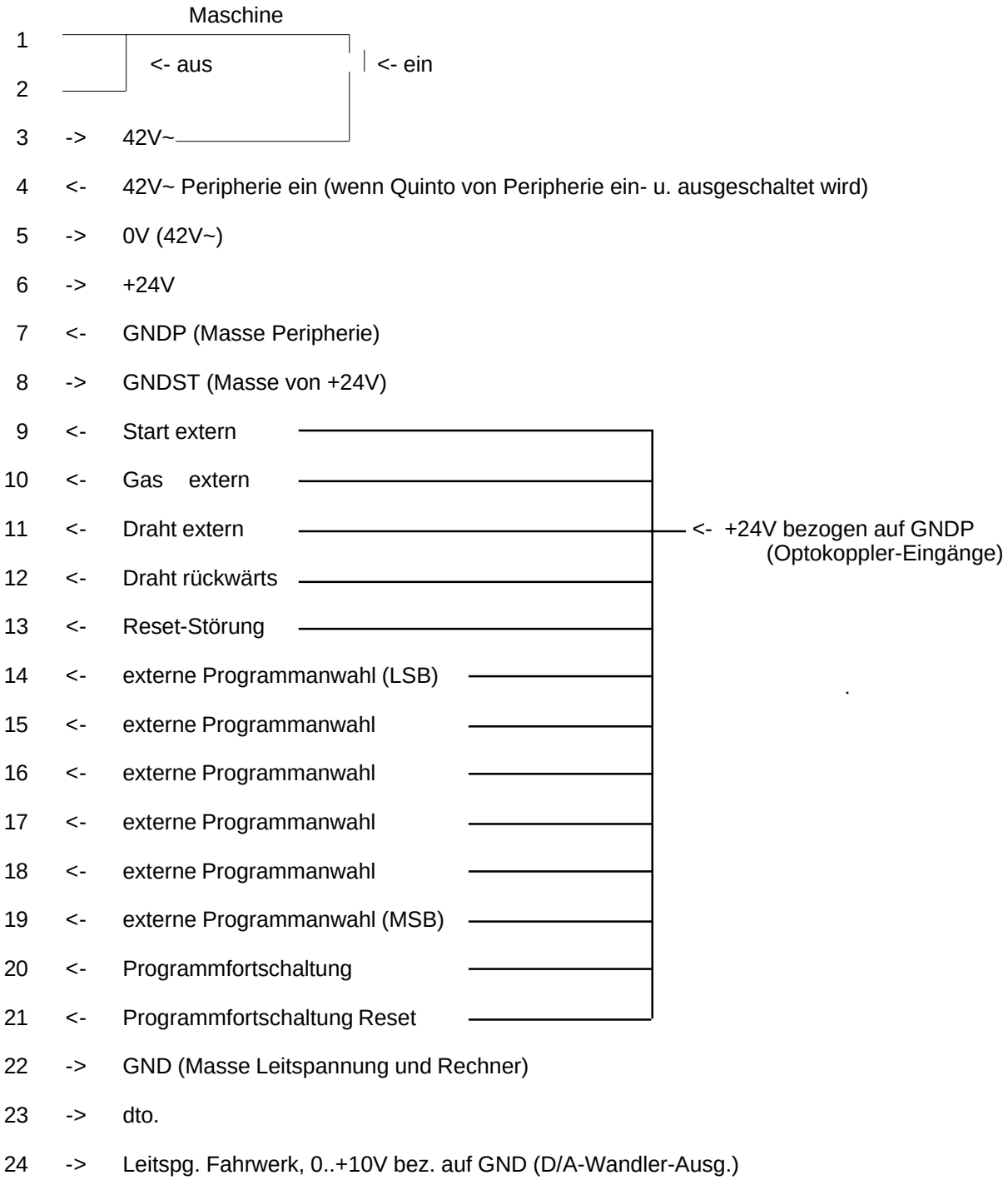
C2 <- Gasüberwachung analog

C3

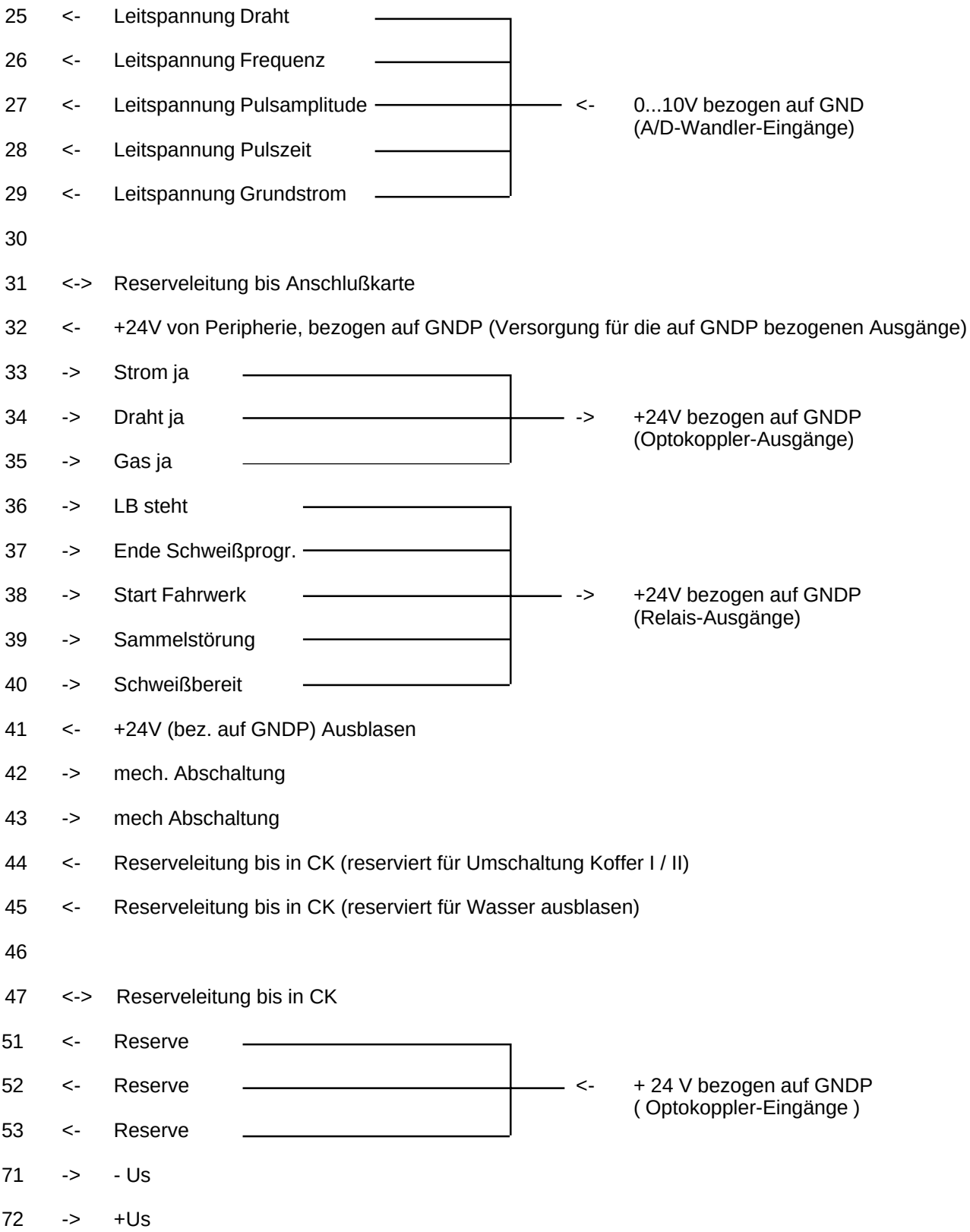
C4

C5 Schirm

Belegung der 72 poligen Peripheriesteckdose X7 an GLC 503 QUINTO

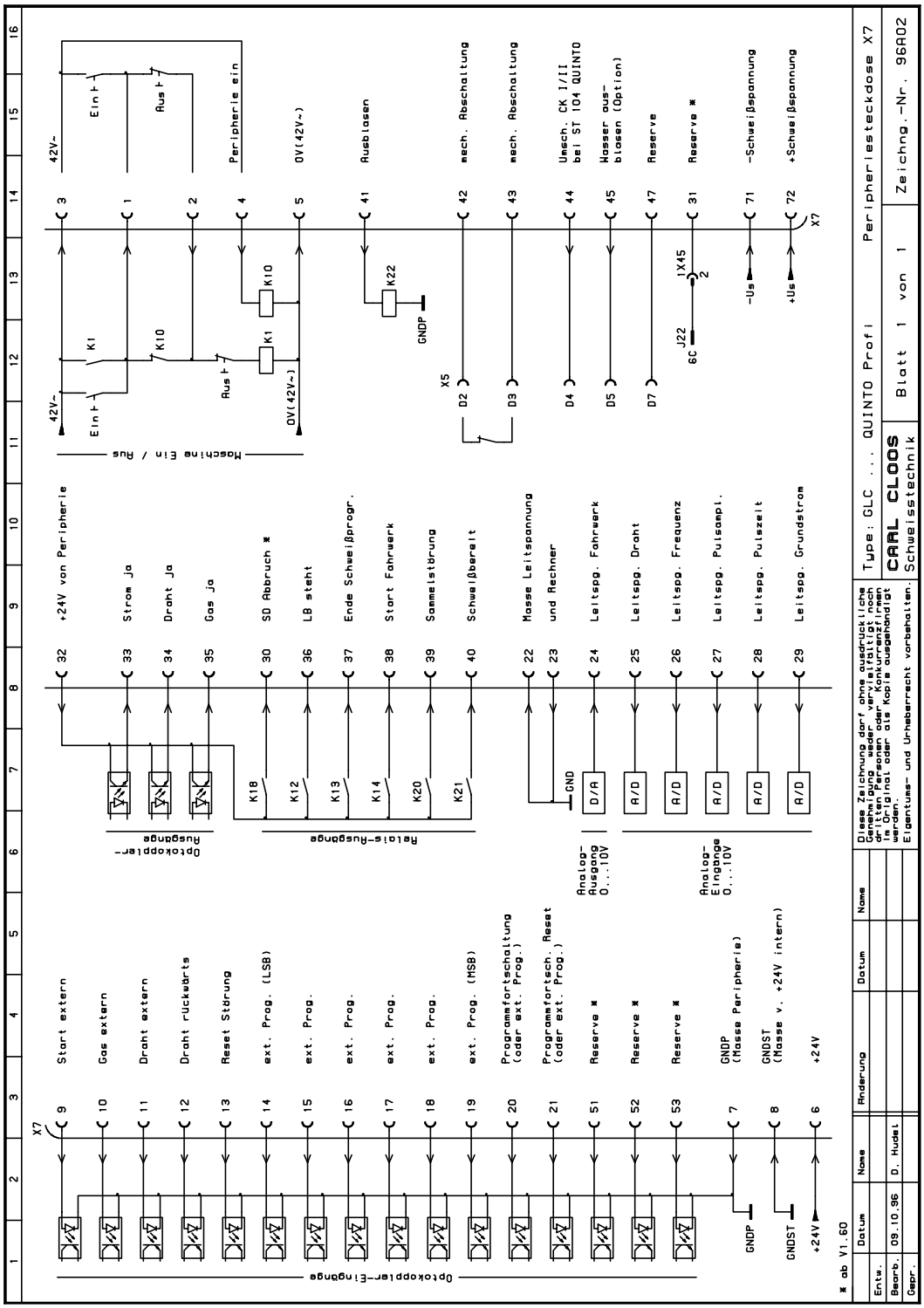


Belegung der 72 poligen Peripheriesteckdose X7 an GLC 503 QUINTO



Zum Anschluß benötigte Steckerteile:

72 pol.	Stecker, Tüllengehäuse	Bestell-Nr. 010 09 19 05
72 pol.	Stiftteil	Bestell-Nr. 010 09 19 04
	Crimpstift 0,75 - 1,0 mm^2	Bestell-Nr. 010 09 18 03
4 Stück	Codier- und Führungsstift	Bestell-Nr. 010 09 18 07



Peripheriesteckdose
Peripheral socket
Prise périphérique

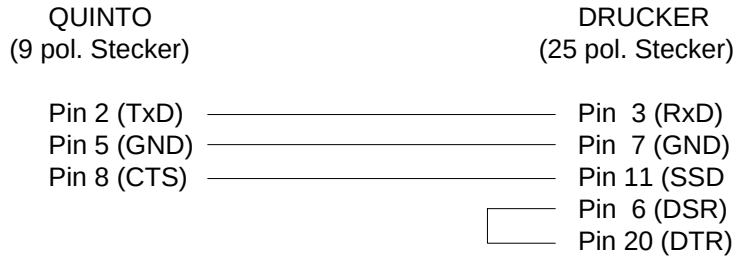
Druckerparameter für Betrieb an QUINTO

Baud Rate	19200
Data Bit	8
Stop Bit	1
Parity	NONE
Protocol	Ready/Busy

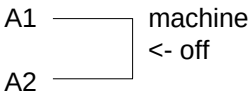
Belegung der RS 232 Schnittstelle (9 polig):

Pin 1 -
Pin 2 - TxD
Pin 3 - RxD
Pin 4 -
Pin 5 - GND
Pin 6 -
Pin 7 - RTS
Pin 8 - CTS
Pin 9

Standardkabelkonfiguration:



Layout plan for 40 pole wire drive unit socket X 5 to GLC 503 QUINTO



A3 -> 42V~

A4 -> 42V~ solenoid valve on

A5 -> 0V (42V~)

A6 -> - motor 1, wire drive unit

A7 -> + motor 1, wire drive unit

A8 -> - motor 2, torch

A9 -> + motor 2, torch

A10 -> +24V, brake relay

B1 -> +24V, relating to GNDST

B2 -> GNDST

B3 <- torch trigger

B4 <- gas by hand

B5 <- wire by hand

B6 <- wire return

B7 <- remote controller on

B8 <- wire yes

B9 <- gas yes

B10

C1 <-> key/lamp wire

C2 <-> key/lamp frequency, voltage

C3 <-> key/lamp pulse amplitude

C4 <-> key/lamp pulse time

C5 <-> key/lamp base current

Layout plan for 40 pole wire drive socket X5 to GLC 503 QUINTO

C6 <- hand wheel channel A

C7 <- hand wheel channel B

C8

C9

C10

D1 -> +24V blowing through

D2 <- mech. collision sensor

D3 <- mech. collision sensor

D4 -> reserve (commutation CK ... I / CK ... II)

D5 <- reserve (water blow through)

D6 -> Option: + 24 V open water advance

D7 <-> reserve to peripheral socket

D8

D9 -> -Us

D10 <- +Us (CK)

Layout plan for 15 pole tachometer socket X6 to GLC 503 QUINTO

A1 <- - tachometer motor 1, wire drive unit

A2 <- + tachometer motor 1, wire drive unit

A3 <- - tachometer CDD

A4 <- + tachometer CDD

A5

B1 <- incremental encoder wire, channel A

B2 <- incremental encoder wire, channel B

B3 <- GND, reference potential for analogue wire control

B4 <- analogue wire control

B5

C1 <- GND, reference potential for analogue gas control

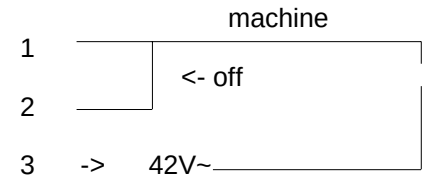
C2 <- analogue gas control

C3

C4

C5 shield

Layout plan for 72 pole peripheral socket X7 to GLC 503 QUINTO



4 <- 42V~ peripheral equipment on (if QUINTO is switched on and off by peripheral equipment)

5 -> 0V (42V~)

6 -> +24V

7 <- GNDP (mass peripheral equipment)

8 -> GNDST (mass of +24V)

9 <- external start

10 <- external gas

11 <- external wire

12 <- wire backward

13 <- reset disturbance

14 <- external program selection(LSB)

15 <- external program selection

16 <- external program selection

17 <- external program selection

18 <- external program selection

19 <- external program selection (MSB)

20 <- program switching

21 <- program switching reset

<- +24V relating to GNDP (optocoupler-inputs)

22 -> GND (mass control voltage and computer)

23 -> dto.

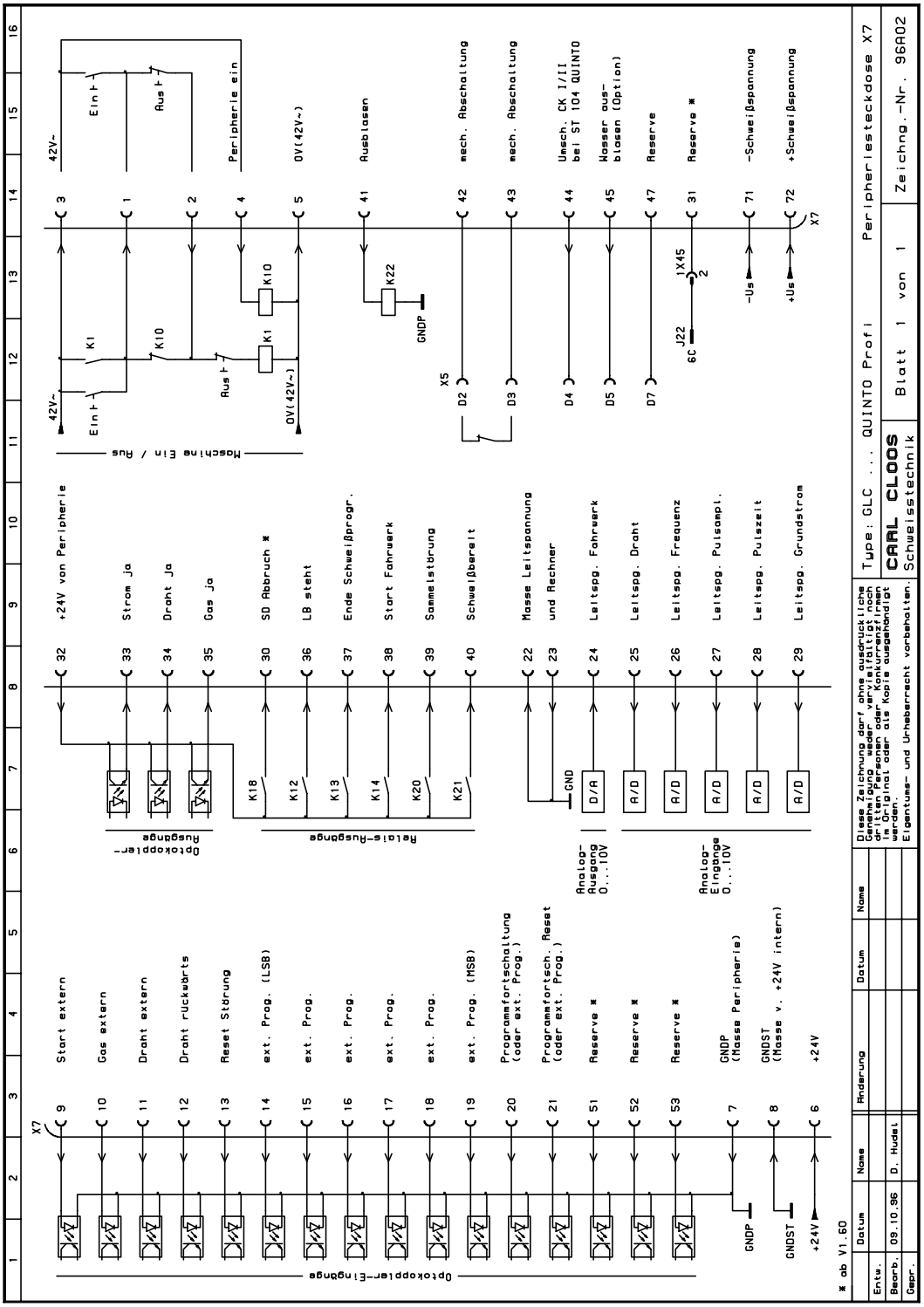
24 -> control voltage carriage, 0..+10V relating to GND (D/A converter output.)

Layout plan for 72 pole peripheral socket X7 to GLC 503 QUINTO

25	<-	control voltage wire		
26	<-	control voltage frequency		
27	<-	control voltage pulse amplitude	<-	0...10V relating to GND (A/D converter inputs)
28	<-	control voltage pulse time		
29	<-	control votage base current		
30				
31	<->	reserve lead up to connection card		
32	<-	+24V of periph. equipment,relating to GNDP (supply for the outputs relating to GNDP)		
33	->	current yes		
34	->	wire yes	->	+24V relating to GNDP (opto coupler outputs)
35	->	gas yes		
36	->	arc burning		
37	->	welding program end.		
38	->	start carriage	->	+24V relating to GNDP (relay outputs)
39	->	collective defect		
40	->	ready for welding		
41	<-	+24V (based on GNDP) blowing through		
42	->	mech. collision sensor		
43	->	mech collision sensor		
44	<-	reserve lead up to CK (reserved for switching from CK I / to CK II)		
45	<-	reserve lead up to CK (reserved for water blowing through)		
46				
47	<->	reserve lead up to CK		
51	<-	reserve		
52	<-	reserve	<-	+ 24 V relating to GNDP (opto coupler inputs)
53	<-	reserve		
71	->	- Us		
72	->	+Us		

Parts required for connection:

72 pol.	plug, hood	Ref. No. 010 09 19 05
72 pol.	multiple plug	Ref. No. 010 09 19 04
	crimp pin 0,75 - 1,0 mm²	Ref. No. 010 09 18 03
4 off	coding and guide pin	Ref. No. 010 09 18 07



Peripheriesteckdose
Peripheral socket
Prise périphérique

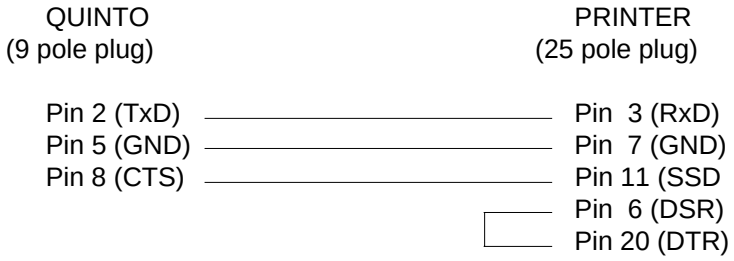
Printer parameter for operation with QUINTO

Baud Rate	19200
Data Bit	8
Stop Bit	1
Parity	NONE
Protocol	Ready/Busy

Layout plan for RS 232 interface (9 poles):

Pin 1 -
Pin 2 - TxD
Pin 3 - RxD
Pin 4 -
Pin 5 - GND
Pin 6 -
Pin 7 - RTS
Pin 8 - CTS
Pin 9

Standard cable configuration:



Plan de la prise à 40pôles X5 du coffret au GLC 503 QUINTO

A1  machine
<- arrêt

A2

A3 -> 42V~

A4 -> 42V~ électrovanne marche

A5 -> 0V (42V~)

A6 -> - moteur 1, coffret d'entraînement

A7 -> + moteur 1, coffret d'entraînement

A8 -> - moteur 2, torche

A9 -> + moteur 2, torche

A10 -> +24V, relais de freinage

B1 -> +24V, en relation du courant de base GNDST

B2 -> courant de base GNDST

B3 <- gachette de la torche

B4 <- gaz à la main

B5 <- fil à la main

B6 <- fil retour

B7 <- régulateur à distance marche

B8 <- fil oui

B9 <- gaz oui

B10

C1 <-> touche / lampe fil

C2 <-> touche / lampe fréquence, tension

C3 <-> touche / lampe amplitude d'impulsions

C4 <-> touche / lampe temps d'impulsions

C5 <-> touche / lampe courant de base

Plan de la prise à 40 pôles X5 du coffret au GLC 503 QUINTO

C6 <- roue à main canal A

C7 <- roue à main canal B

C8

C9

C10

D1 -> +24V soufflage

D2 <- système mécanique de sécurité

D3 <- système mécanique de sécurité

D4 -> réserve (commutation CK ... I / CK ... II)

D5 <- réserve (soufflage d'eau)

D6 -> Option: + 24 V ouvrir avance d'eau

D7 <-> réserve sur prise de la périphérie

D8

D9 -> -Us

D10 <- +Us (CK)

Plan de la prise à 15 pôles X6 du tachymètre au GLC 503 QUINTO

A1 <- - tachymètre moteur 1, coffret d'entraînement

A2 <- + tachymètre moteur 1, coffret d'entraînement

A3 <- - tachymètre CDD

A4 <- + tachymètre CDD

A5

B1 <- encodeur incrémental fil, canal A

B2 <- encodeur incrémental fil, canal B

B3 <- GND, potentiel de référence pour surveillance analogue du fil

B4 <- surveillance analogue du gaz

B5

C1 <- GND, potentiel de référence pour surveillance analogue du fil

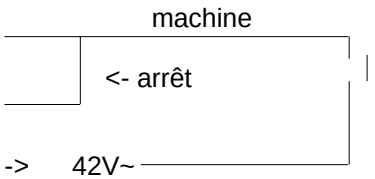
C2 <- surveillance analogue du gaz

C3

C4

C5 écran

Plan de la prise périphérique à 72 pôles X7 au GLC 503 QUINTO



3	->	42V~
4	<-	42V~ périphérique marche (si Quinto est enclenché/déclenché par la périhérique)
5	->	0V (42V~)
6	->	+24V
7	<-	GNDP (masse périphérique)
8	->	GNDST (masse de +24V)
9	<-	marche externe
10	<-	gas externe
11	<-	fil externe
12	<-	retour de fil
13	<-	défault reset
14	<-	sélection externe du programme (LSB)
15	<-	sélection externe du programme
16	<-	sélection externe du programme
17	<-	sélection externe du programme
18	<-	sélection externe du programme
19	<-	sélection externe du programme (MSB)
20	<-	réenclenchement de programme
21	<-	réenclenchement de programme Reset
22	->	GND (mass tension maître et calculateur)
23	->	dto.
24	->	Tension pilote chariot, 0..+10V en relation de GND (D/A sortie convertisseur)

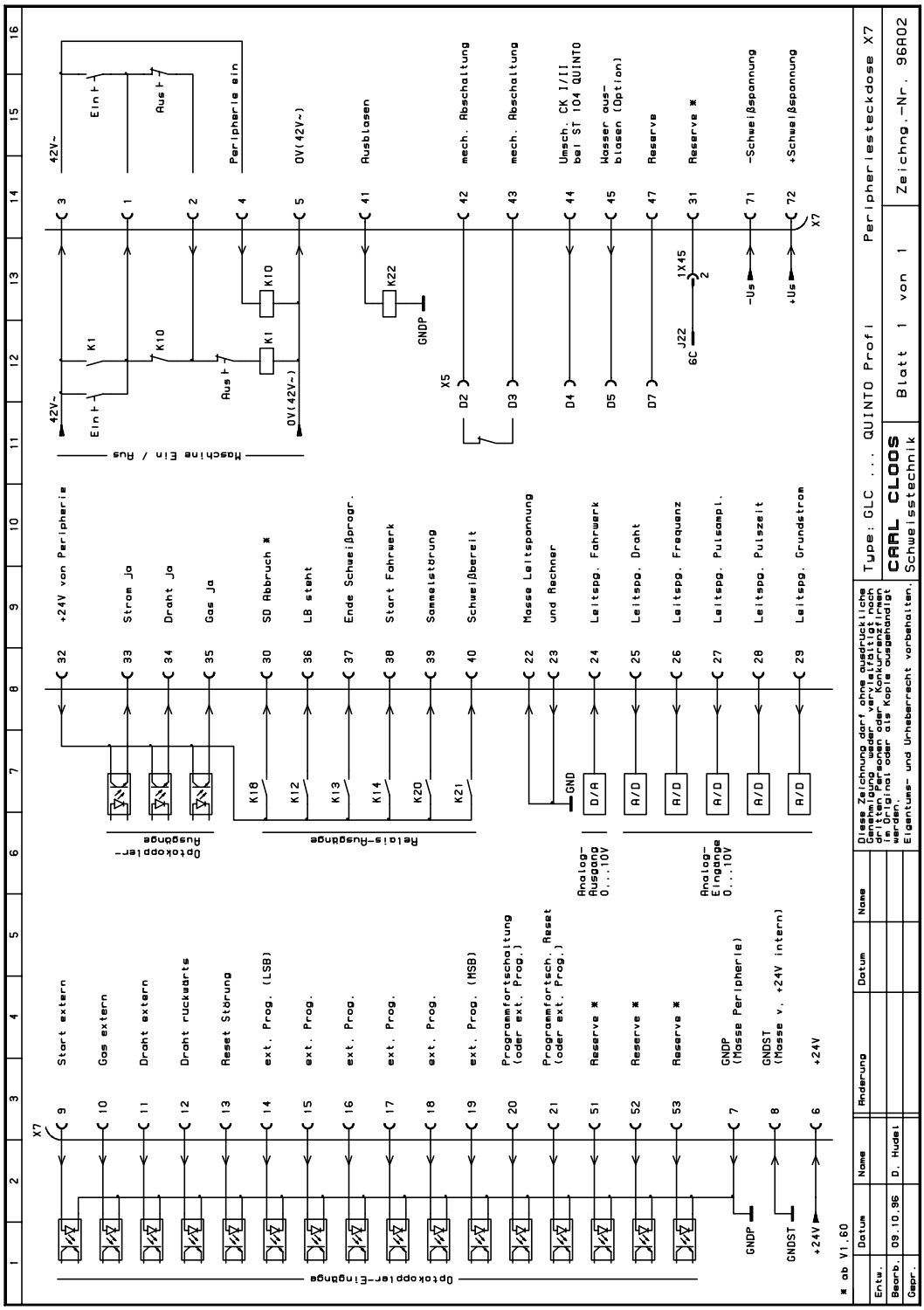
<- +24V en relation du courant de base GNDP (entrées coupleur optique)

Plan de la prise périphérique à 72 pôles X7 au GLC 503 QUINTO

25	<-	tension pilote fil		
26	<-	tension pilote fréquence		
27	<-	tension pilote amplitude d'impulsions	<-	0...10V en relation du GND (A/D entrées convertisseur)
28	<-	tension pilote temps d'impulsions		
29	<-	tension pilote courant de base		
30				
31	<->	ligne de réserve jusqu'à la carte de connexions		
32	<-	+24V de la périphérique, en relation du GNDP (alimentation des sorties en relation du GNDP)		
33	->	courant oui		
34	->	fil oui	->	+24V en relation du GNDP (sorties coupleur optique)
35	->	gaz oui		
36	->	arc existant		
37	->	fin programme de soudage		
38	->	chariot marche	->	+24V en relation du GNDP (sorties relais)
39	->	défaut collectif		
40	->	prêt au soudage		
41	<-	+24V (basé sur GNDP) soufflage		
42	->	système mécanique de sécurité		
43	->	système mécanique de sécurié		
44	<-	ligne de réserve jusqu'au CK (réservée pour commutation CK.. I / CK..II)		
45	<-	ligne de réserve jusqu'au CK (réservée pour soufflage d'eau)		
46				
47	<->	ligne de réserve jusqu'au CK		
51	<-	réserve		
52	<-	réserve	<-	+ 24 V en relation du GNDP (entrées opto coupleur)
53	<-	réserve		
71	->	- Us		
72	->	+Us		

Pièces nécessaires pour le raccord:

fiche à 72 pôles, capot	Référence 010 09 19 05
fiche multiple à 72 pôles	Référence 010 09 19 04
cheville crimp 0,75 - 1,0 mm²	Référence 010 09 18 03
4 pcs. cheville de codage et de guidage	Référence 010 09 19 07



Peripheriesteckdose
Peripheral socket
Prise périphérique

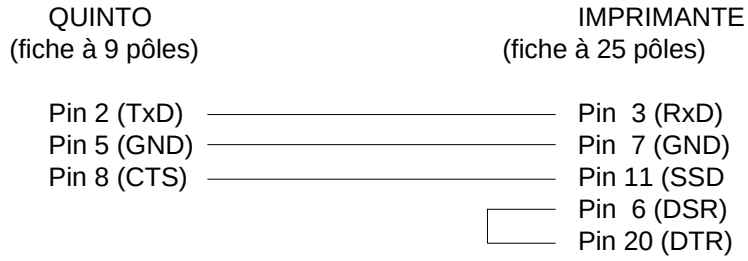
Paramètres d'imprimante pour l'opération avec QUINTO

Baud Rate	19200
Data Bit	8
Stop Bit	1
Parity	NONE
Protocol	Ready/Busy

Plan pour interface sérielle RS 232 (9 pôles):

Pin 1 -
Pin 2 - TxD
Pin 3 - RxD
Pin 4 -
Pin 5 - GND
Pin 6 -
Pin 7 - RTS
Pin 8 - CTS
Pin 9

Configuration standard du câble:



ACHTUNG !

Das Gerät enthält einen Wasserfilter vor der Saugseite der Kühlwasserpumpe.

Bei der Meldung 'Wassermangel' ist dieser Filter auf Verunreinigungen hin zu prüfen und ggf. auszubauen, zu waschen und wieder einzubauen. Die Einbaurichtung darf nicht verändert werden! Richtungspfeil von der Pumpe weg!

Das Filter hat die CLOOS-Bestell-Nr. 016 09 11 00

OHNE Wassermangelschalter darf ein Wasserfilter NICHT eingebaut werden!

CAUTION !

A water filter is installed in front of the suction side of the water cooling pump.

If the message „low water" appears, this filter must be checked for contamination; if necessary, remove, wash and reinstall the filter. Do not change the installation direction! Directional arrow points away from the pump!

The filter has the CLOOS part No. 016 09 11 00.

Do NOT install a water filter WITHOUT a low-water switch!

ATTENTION !

Un filtre est installé à l'aspiration de la pompe à eau de refroidissement.

Si le message „Manque d'eau" apparaît, il faut vérifier si le filtre ne contient pas des impurités. Démonter, laver et remonter le filtre si nécessaire. Il est interdit de changer le sens de montage! La flèche de direction doit être en sens inverse par rapport à la pompe.

Référence du filtre: 016 09 11 00

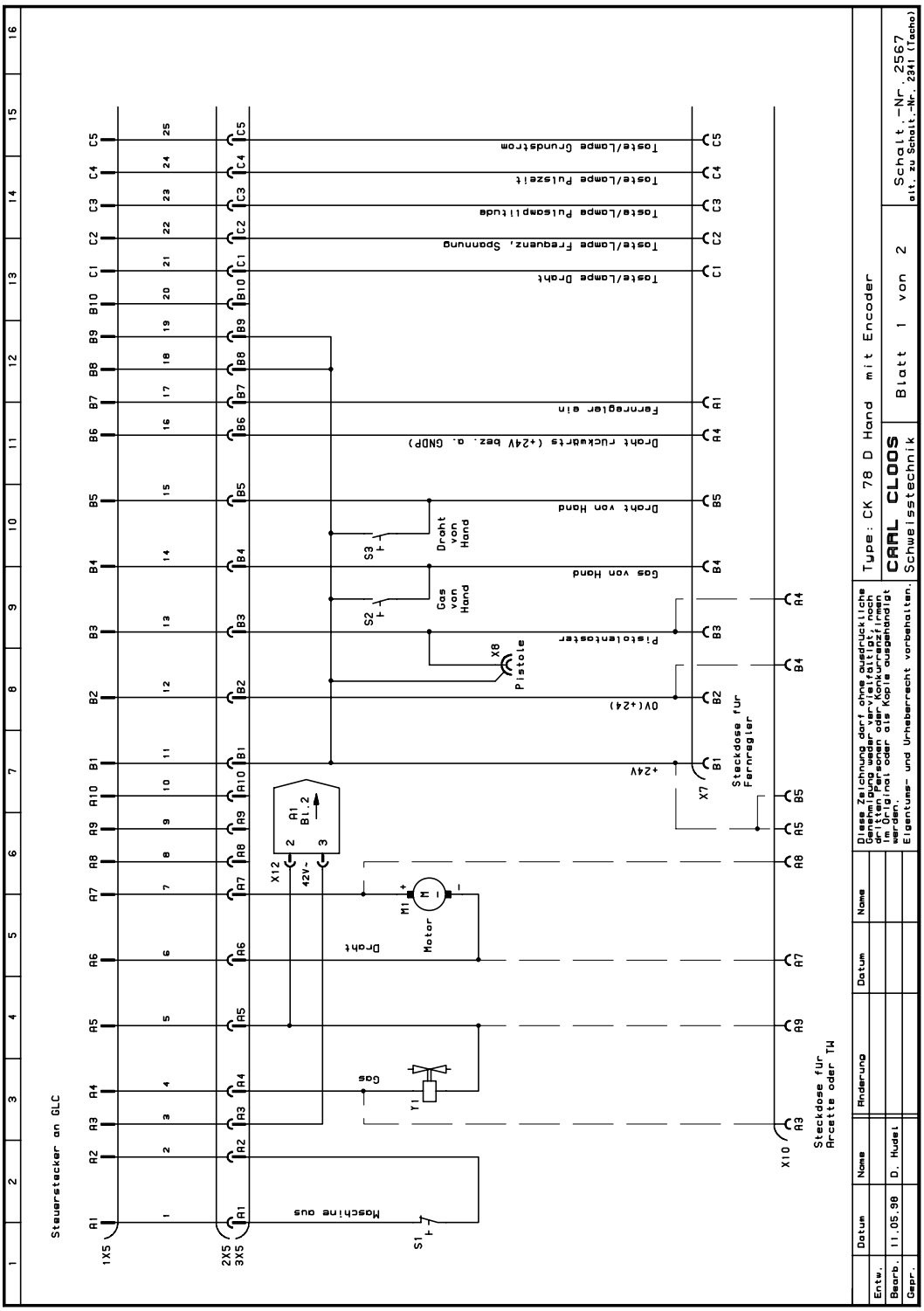
Il est INTERDIT d'installer un fitre d'eau SANS avertisseur de niveau d'eau!

353/503 QUINTO Profi

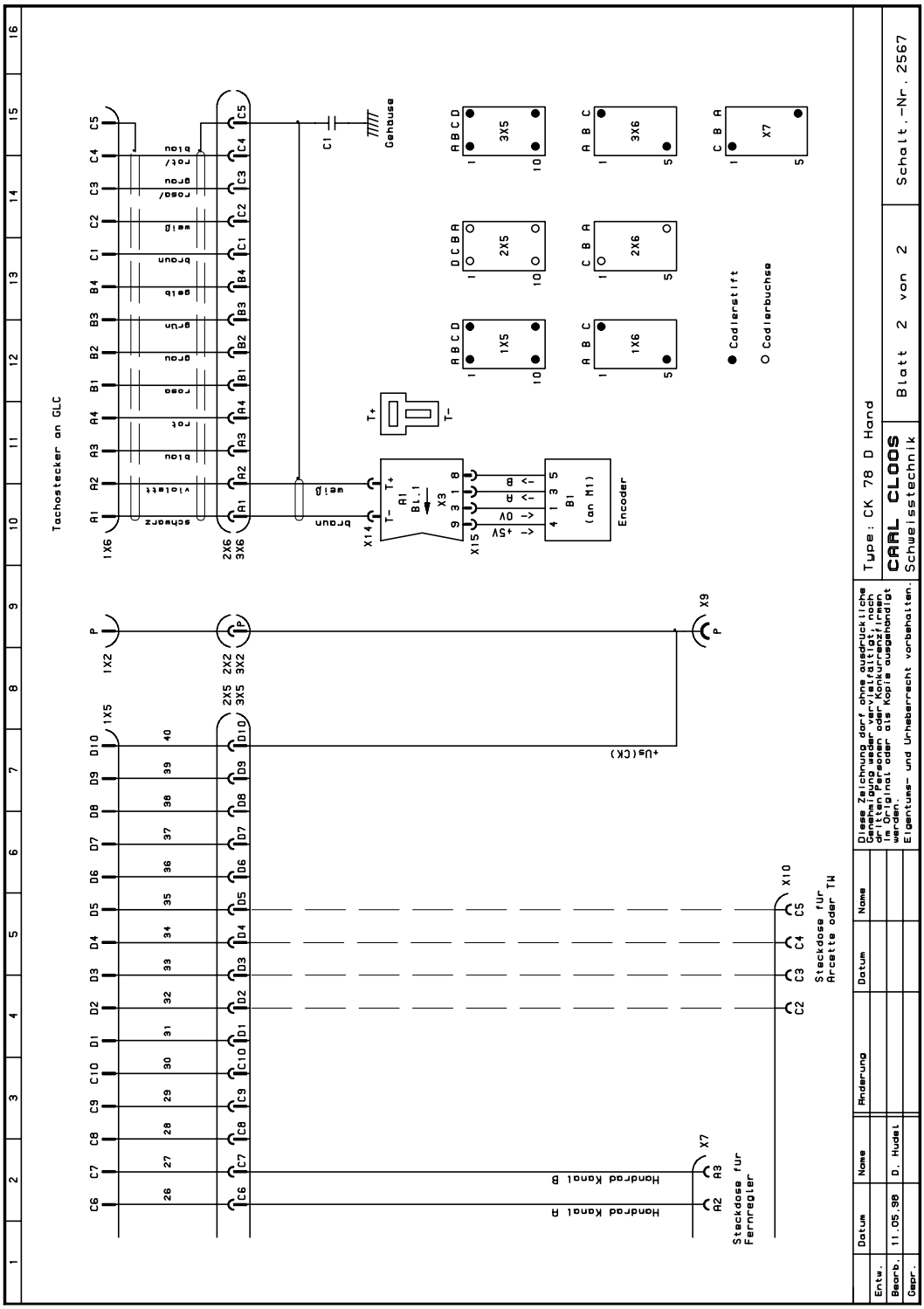
Ergänzungsbeilage CK 78 D Hand
Schalt.-Nr. 2567
und CK 78 D/R mit Encoder
Schalt.- Nr. 2568

Supplement CK 78 D manual
Diagram No. 2567
and CK 78 D/R with encoder
Diagram No. 2568

Supplément CK 78 D manuel
Schéma no. 2567
et CK 78 D/R avec codeur
Schéma no. 2568



Blatt 1 von 2	CK 78 D Hand mit Encoder	Schalt.-Nr. 2567
Page 1 of 2	CK 78 D manual with encoder	Diagram No. 2567
Page 1 de 2	CK 78 D manuel avec codeur	Schéma no. 2567



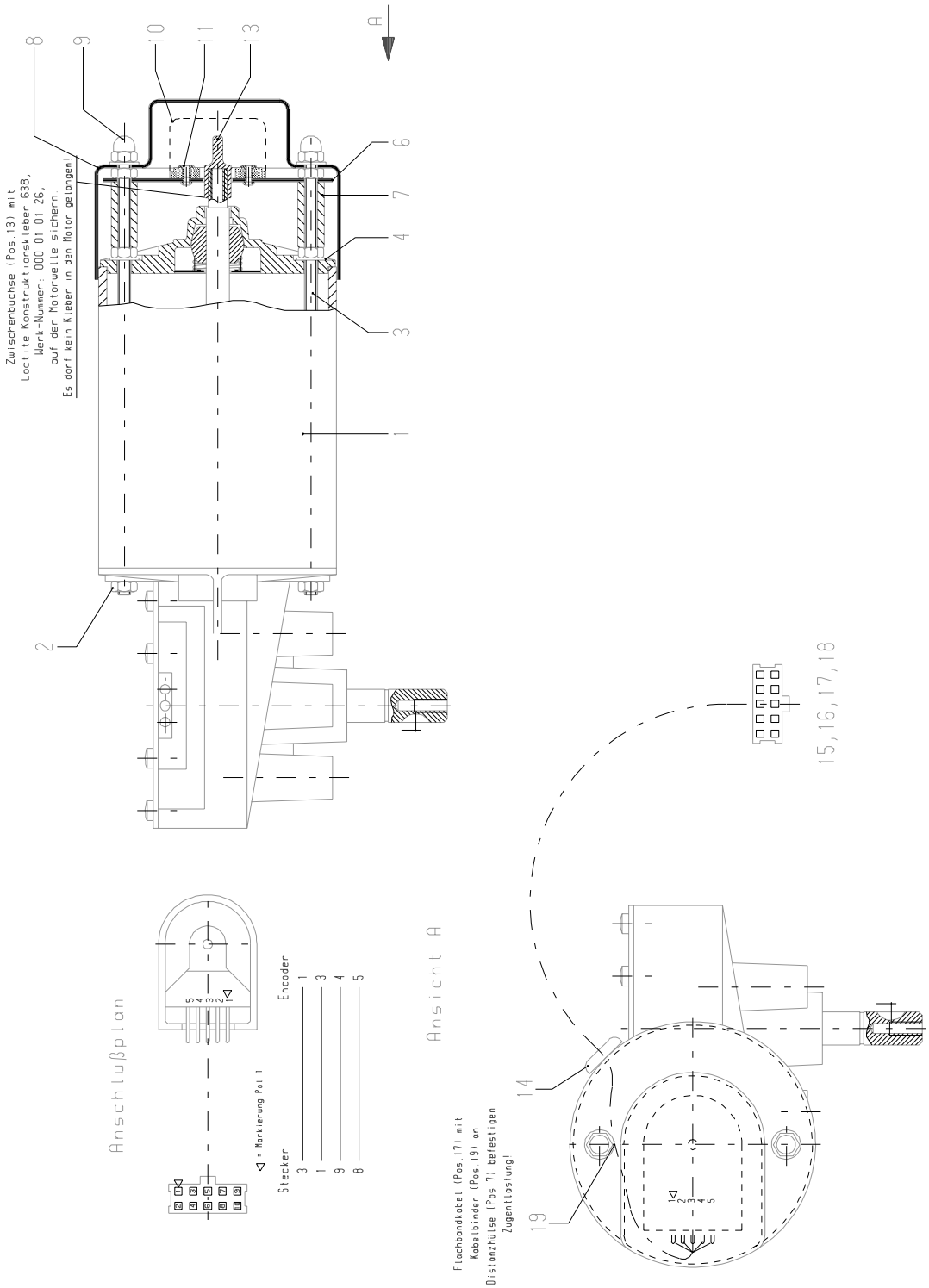
Blatt 2 von 2	CK 78 D Hand mit Encoder	Schalt.-Nr. 2567
Page 2 of 2	CK 78 D manual with encoder	Diagram No. 2567
Page 2 de 2	CK 78 D manuel avec codeur	Schéma no. 2567

Elektrische Stückliste für CK 78 D Hand - Schalt.-Nr. 2567 /
Electrical parts list for CK 78 D manual - Diagram No. 2567 /
Liste des pièces électriques pour CK 78 D manuel - Schéma no. 2567

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	606 30 00 00	CK 78 D Hand, 2+2-Rollenantrieb, 30 mm/ CK 78 D manual, 2+2 roller drive, 30 mm/CK 78 D manuel, entraînement à 2+2 galets, 30 mm
	607 30 00 00	CK 78 D mit HD-Antrieb, 2+2-Rollen. Ø40mm/CK 78 D with HD drive, 2+2 rollers. Ø 40mm / CK 78 D avec entraînement HD, plaque 2+2 galets. Ø 40mm
	607 30 00 10	CK 78 D mit HD, mit Euro-Brenneranschluss/CK 78 D with HD, with Euro torch connection / CK 78 D avec HD, avec raccord torche Euro
	607 30 10 00	CK 78 D mit HD, mit TW-Steckdose/CK 78 D with HD, with TW socket / CK 78 D avec HD, avec prise TW
	607 30 10 10	CK 78 D mit HD, mit Euro-Anschluss und TW-Steckdose/ CK 78 D avec HD, with Euro torch connection and TW socket / CK 78 D avec HD, avec raccord torche Euro et prise TW
	033 17 39 00	Bei Bedarf: Umbausatz 4-Rollenantrieb/ If required: conversion kit 4 roller drive/ En cas de besoin: kit de modification système d'entraînement à 4 galets
	650 64 00 80	VSP wassergekühlt 0,8 m lang/ cable assembly water-cooled 0,8 m long/ faisceau de câbles refroidi par eau, longueur 0,8 m
	650 64 02 00	dto./dito 5,0 m lang/ long/ de longueur
	650 64 03 00	dto./dito 10,0 m lang/ long/ de longueur
	650 64 04 00	dto./dito 15,0 m lang/ long/ de longueur
	650 64 05 00	dto./dito 20,0 m lang/ long/ de longueur
A1	033 24 87 00	Steuerplatte Geberauswertung, Schalt.-Nr. 2371 / control board encoder evaluation, diagram No. 2371 / platine de commande évaluation codeur, schéma no. 2371
A1	033 24 87 50	Steuerplatte Geberauswertung, HD-Antrieb / control board encoder evaluation, HD Drive / platine de commande évaluation codeur, Entraînement HD
B1	an M1	Inkrementalgeber / incremental encoder / codeur incrémental
C1	021 02 02 05	Kondensator 10nF/630V / capacitor 10nF/630V/ condensateur 10nF/630V
M1	024 14 28 30	Drahtantriebsmotor kpl. mit B1 und X15 /wire drive motor compl. with B1 and X15/ moteur d'entraînement de fil cpl. avec B1 et X15
S1	008 01 00 19	Taster rot, Maschine aus / push button, red, machine off/ bouton poussoir rouge, machine arrêt
S2	008 01 00 21	Drucktaste schwarz, Gas von Hand / push button, black, wire manual / bouton poussoir noir, gaz manuel
	008 01 00 22	Schaltelement 1xÖ, 1xS / circuit element 1xÖ, 1xS / élément de circuit 1xÖ, 1xS
S3	008 01 00 21	Drucktaste schwarz, Draht von Hand / push button, black, wire manual / bouton poussoir noir, fil manuel
	008 01 00 22	Schaltelement 1xÖ, 1xS / circuit element 1xÖ, 1xS/ élément de circuit 1xÖ, 1xS
1X2	073 03 11 00	Schweißstromstecker 95 mm²/welding current plug 95 mm² / fiche du courant de soudage 95 mm²
2X2	073 03 18 00	Schweißstromkupplung 95 mm² / welding current coupling 95 mm² / accouplement du courant de soudage 95 mm²
3X2	073 03 19 00	Einbausteckerteil /built-in male connector/connecteur mâle encastré
1X5	010 09 18 25	Tüllengehäuse / hod / capot
	010 09 18 23	40pol. Stiftteil /40 pole multiple plug / fiche multiple à 40 pôles
	010 09 18 03	Crimpstift 0,75-1,0 mm² / crimp pin 0,75-1,0 mm²/ pin 0,75-1,0 mm²
	010 09 18 07	Codierstift /coding pin / cheville de codage
2X5	010 09 18 25	Tüllengehäuse /hood / capot
	010 09 18 24	40pol. Buchsenteil / 40 pole bush part / détrompeur à 40 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0 mm² / crimp bush 0,75-1,0 mm²/ douille 0,75-1,0 mm²
	010 09 18 08	Codierbuchse / coding bush / douille de codage/
3X5	010 09 18 26	Anbaugehäuse / housing / embase
	010 09 18 23	40pol. Stiftteil / 40 pole multiple plug / fiche multiple à 40 pôles
	010 09 18 03	Crimpstift 0,75-1,0 mm² / crimp pin 0,75-1,0 mm² / pin 0,75-1,0 mm²
	010 09 18 07	Codierstift / coding pin / cheville de codage

Elektrische Stückliste für CK 78 D Hand - Schalt.-Nr. 2567 /
Electrical parts list for CK 78 D manual - Diagram No. 2567 /
Liste des pièces électriques pour CK 78 D manuel - Schéma no. 2567

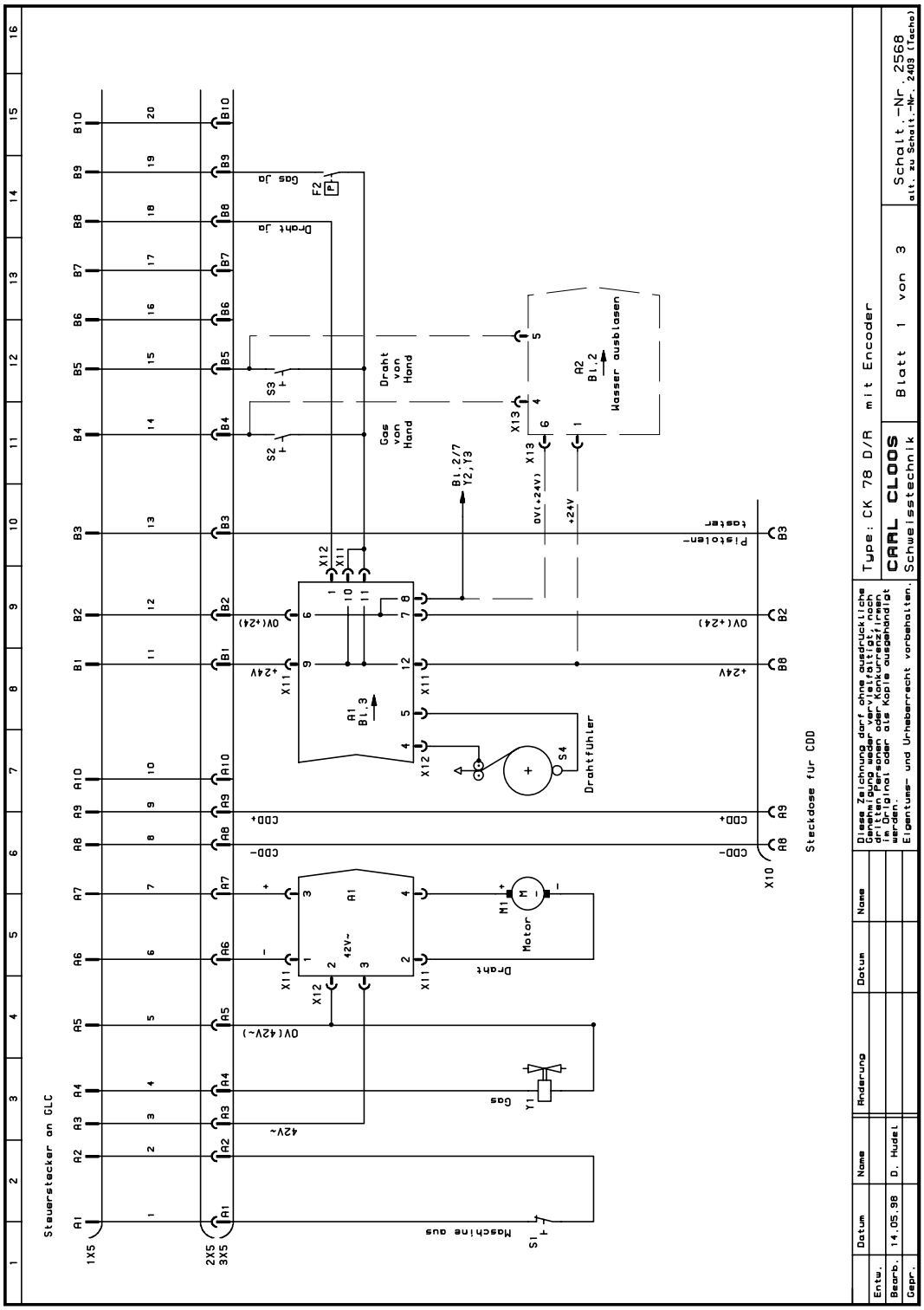
Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
1X6	010 09 13 00	Tüllengehäuse / hood / capot
	010 09 18 28	15pol. Stiftteil / 15 pole multiple plug / fiche multiple à 15 pôles
	010 09 18 05	Crimpstift 0,2 mm² / crimp pin 0,2 mm² / pin 0,2 mm²
	010 09 18 07	Codierstift (bei C1 und A5) /coding pin (for C1 and A5) / cheville de codage (pour C1 et A5)
2X6	010 09 13 00	Tüllengehäuse / hood / capot
	010 09 18 29	15pol. Buchsenteil /15 pole bush part / détrompeur à 15 pôles
	010 09 18 80	Crimpbuchse 0,14-0,37 mm² / crimp bush 0,14-0,37 mm² / douille 0,14-0,37 mm²
	010 09 18 08	Codierbuchse (bei C1 und A5) / coding bush (for C1 and A5) / douille de codage (pour C1 et A5)
3X6	010 09 13 01	Anbaugehäuse / housing / embase
	010 09 18 28	15pol. Stiftteil / 15 pole multiple plug / fiche multiple à 15 pôles
	010 09 18 05	Crimpstift 0,2 mm² / crimp pin 0,2 mm² / pin 0,2 mm"
	010 09 18 03	Crimpstift 0,75-1,0 mm² / crimp pin 0,75-1,0 mm² / pin 0,75-1,0 mm²
	010 09 18 07	Codierstift (bei C1 und A5)/ coding pin (for C1 and A5) / cheville de codage (pour C1 et A5)
X7	010 09 13 05	Anbaugehäuse mit Klappdeckel /attached housing with hinged cover/ embase avec couvercle à charnière
	010 09 18 29	15pol. Buchsenteil / 15 pole /15 pole bush part / détrompeur à 15 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0 mm² /crimp bush 0,75-1,0 mm²/douille 0,75-1,0 mm²
	010 09 18 07	Codierstift (bei C1 und A5) /coding pin (for C1 et A5) / cheville de codage (pour C1 et A5)
X8	010 03 03 00	Steckdose Pistole Steuerleitung / socket for torch control lead / prise pour ligne pilote de la torche
X9	604 04 06 00	Pistolen Z-Anschluß kpl. /torch central connection /raccord central de la torche
X12	011 03 67 10	6pol. Buchsengehäuse 5,08 /6 pole bushing housing 5,08 / embase à douille à 6 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm²,verzinnt, / crimp bush 0,2-0,8mm²/ douille 0,2-0,8mm²
X14	035 02 03 01	Gehäuse 2pol. für Flachsteckhülse /2 pole housing for receptacle / embase à 2 pôles pour alvéole
	035 02 00 31	Flachsteckhülse 6,3 / receptacle 6,3 / alvéole 6,3
X15	011 03 19 08	10pol. Federleiste / 10 pole multiple contact socket/ connecteur femelle à 10 pôles
	011 03 19 09	Zugentlastungsbügel / strain relief clamp / archet d'antitraction
	038 13 22 00	10pol. Flachbandkabel ca. 650 mm lang / 10 pole flat cable approx. length 650mm/ câble plat à 10 pôles, longueur environ 650 mm
Y1	032 02 05 00	Magnetventil für Schutzgas /solenoid valve for shielding gas/ électrovanne pour gaz protecteur
	033 17 40 00	Option TW-Steckdose bestehend aus:/Option: TW socket composed of: / Option: prise TW composé de:
X10	010 09 10 05	Anbaugehäuse mit Klappdeckel / attached housing with hinged cover / embase avec couvercle à charnière
	010 09 18 12	25pol. Buchsenteil / 25 pole bush part/ détrompeur à 25 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0 mm² / crimp bush 0,75-1,0 mm² / douille 0,75-1,0 mm²



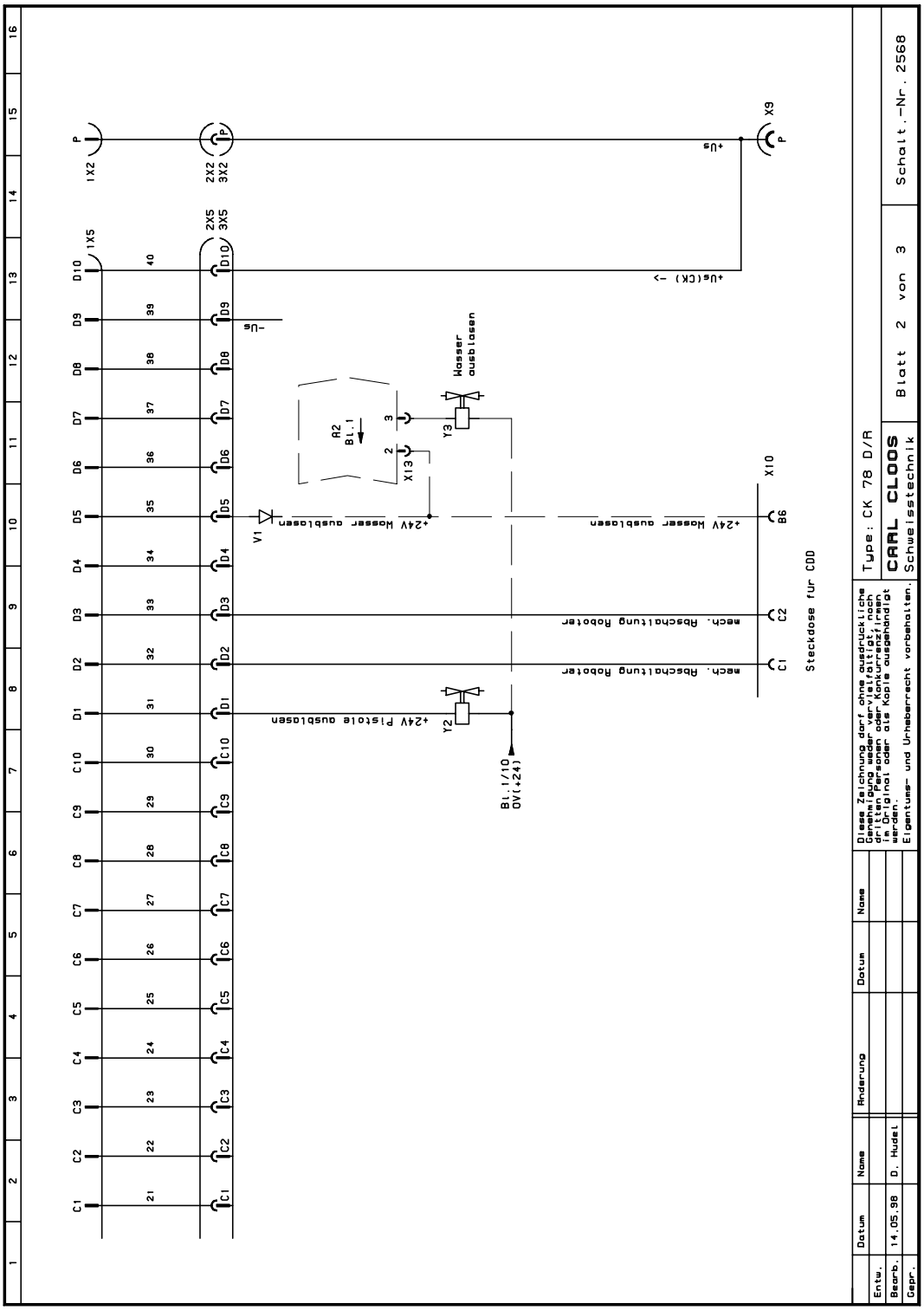
Drahtantriebsmotor Wire drive motor Moteur d'entraînement de fil	Bestell-Nr. 024 14 28 30 Order-No. 024 14 28 30 Réference 024 14 28 30

Ersatzteilliste für Drahtantriebsmotor KSV 5035 /
Spare parts list for wire drive motor KSV 5035 /
Liste des pièces pour moteur d'entraînement de fil KSV 5035

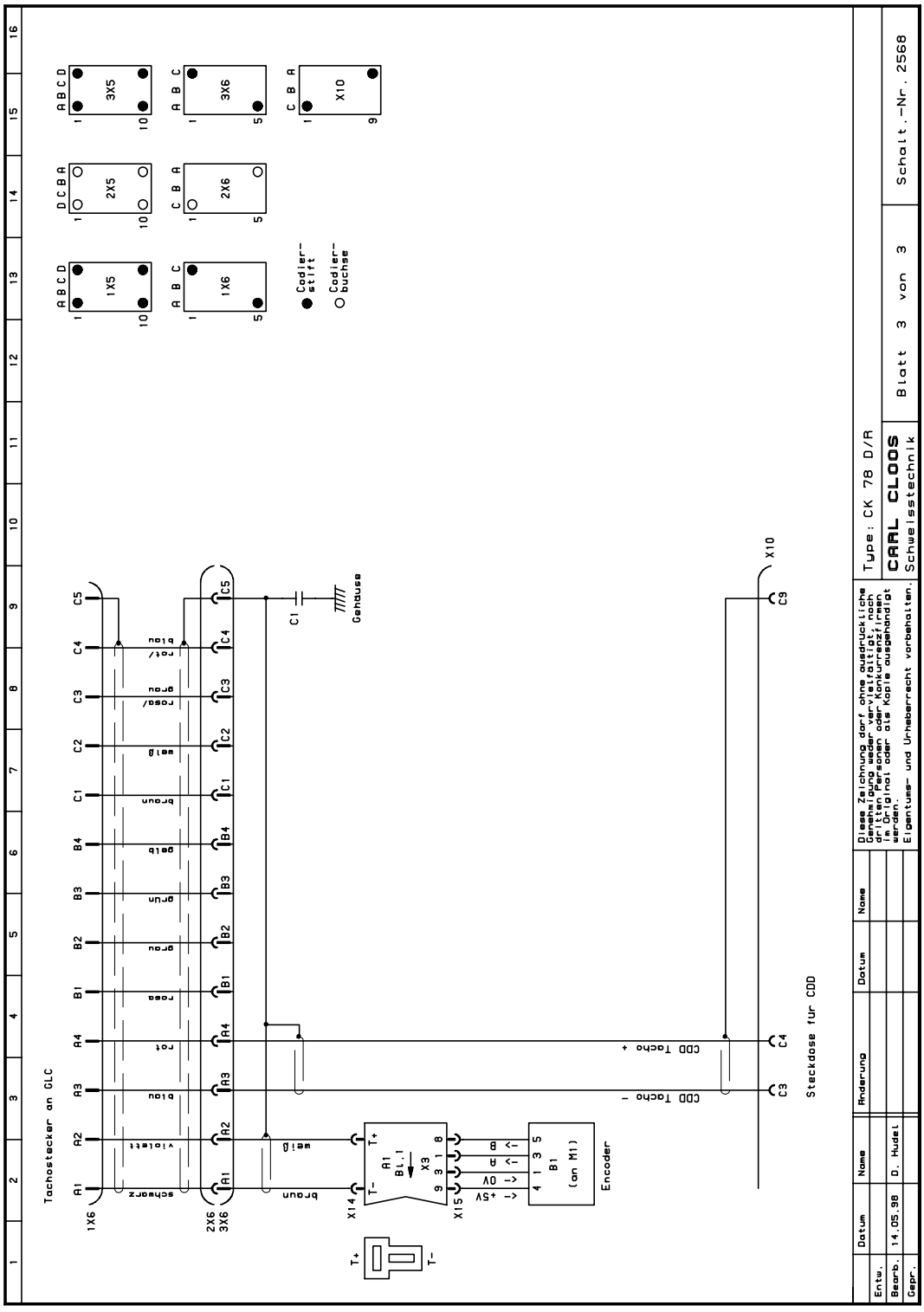
Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
1	024 14 28 00	Drahtvorschubmotoe KSV 5035/602 / wire drive motor KSV 5035/602 / moteur d'entraînement de fil KSV 5035/602
2	102 80 40 00	Sechskantmutter M4 / hexagon nut M4 / écrou héxagonal M4
3	024 14 28 53	Gewindestange M4 x 135 / threaded rod M4x135 / tige filetée M4x135
4	100 80 40 00	U-Scheibe A4.3 / U washer A4.3 / rondelle en U A4.3
6	024 14 28 23	Halteblech 1x15x70 / holding plate 1x15x70 / tôle de support 1x15x70
7	024 14 28 22	Distanzhülse / distance sleeve / douille d'écartement
8	024 14 28 52	Abdeckhaube / cover / couvercle
9	103 60 40 00	Hutmutter M4 / cap nut M4 / écrou borgne M4
10	019 15 01 10	Opt. Encoder / optical encoder / encodeur optique
11	104 20 20 00	Blindniet Ø2.4x6 / blind rivet Ø2.4x6 / rivet aveugle Ø2.4x6
13	024 14 28 31	Zwischenbuchse Ø5.8/Ø3.0x19 / intermediate bush Ø5.8/Ø3.0x19 / douille intermédiaire Ø5.8/Ø3.0x19
14	035 01 00 02	Kabeldurchführungstülle Ø8 / cable bushing Ø8 / passe-câble Ø8
15	011 03 19 08	Federleiste 10-polig, ohne Zugentlastungsbügel / 10 pole multipole connector, without strain relief clamp / connecteur à 10 pôles, sans pince de décharge de traction
16	011 03 19 09	Zugentlastungsbügel für 10-polige Federleiste / strain relief clamp for 10 pole multipole connector / pince de décharge de traction pour connecteur à 10 pôles à ressorts
17	038 13 22 00	Farbcod. Flachbandkabel / colour coded flat cable / câble plat codé en couleur
18	039 06 01 00	Schutzschlauch 8x650 / protective hose 8x650 / tuyau protecteur 8x650
19	095 01 02 06	Kabelbinder 2.5x98 / cable binder 2.5x98 / support à câble 2.5x98



Blatt 1 von 3	CK 78 D/R	Schalt.-Nr. 2568
Page 1of 3	CK 78 D/R	Diagram No. 2568
Page 1 de 3	CK 78 D/R	Schéma no. 2568



Blatt 2 von 3	CK 78 D/R	Schalt.-Nr. 2568
Page 2 of 3	CK 78 D/R	Diagram No. 2568
Page 2 de 3	CK 78 D/R	Schéma no. 2568



Blatt 3 von 3	CK 78 D/R	Schalt.-Nr. 2568
Page 3 of 3	CK 78 D/R	Diagram No. 2568
Page 3 de 3	CK 78 D/R	Schéma no. 2568

Elektrische Stückliste für CK 78 D/R - Schalt.-Nr. 2568 /
Electrical parts list for CK 78 D/R - Diagram No. 2568 /
Liste des pièces électriques pour CK 78 D/R - Schéma no. 2568

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
	606 27 00 00	CK 78 D/R, 2+2-Rollenantrieb, 30 mm /CK 78 D/R, 2+2 roller drive, 30 mm / CK 78 D/R entraînement à 2+2 galets, 30 mm
	607 27 00 00	CK 78 D/R mit HD-Antrieb, 2+2-Rollen, 40mm/CK 78 D/R with HD drive, 2+2 rollers, 40mm / CK 78 D/R avec entraînement HD, plaque 2+2 galets, 40mm
	607 49 00 00	CK 78 D/R O mit HD, offen/CK 78 D/R O with HD, open unit / CK 78 D/R O avec HD, construction ouverte
	607 49 00 10	CK 78 D/R O mit HD, offen, mit Euro-Anschluß/CK 78 D/R O with HD, open unit, with Euro connection / CK 78 D/R O avec HD, construction ouverte, avec raccord Euro
	033 17 39 00	Bei Bedarf: Umbausatz 4-Rollenantrieb / If required: coversion kit 4 roller drive / En cas de besoin; kit de modification système d'entraînement à 4 galets
	650 64 00 80	VSP wassergekühlt 0,8 m lang cable assembly water-cooled 0,8 m long / faisceau de câbles refroidi par eau, longueur 0,8 m
	650 64 02 00	dto. /dito 5,0 m lang/ long / de longueur
	650 64 03 00	dto. /dito 10,0 m lang/long / de longueur
	650 64 04 00	dto. /dito 15,0 m lang/ long / de longueur
	650 64 05 00	dto./dito 20,0 m lang / long/ de longueur
A1	033 24 87 10	Steuerplatte Geberauswertung und Drahtkontrolle Schalt.-Nr. 2371 / control board encoder evaluation and wire control, diagram No. 2371 / platine de commande évaluation codeur et contrôle du fil, schéma no. 2371
A1	033 24 87 60	Steuerplatte Geberauswertung und Drahtkontrolle HD-Antrieb/ control board encoder evaluation and wire control, HD Drive / platine de commande évaluation codeur et contrôle du fil, Entraînement HD
B1	an M1	Inkrementalgeber /incremental encoder/ codeur incrémental
C1	021 02 02 05	Kondensator 10nF/630V / capacitor 10nF/630V/condensateur 10nF/630V
F2	016 07 06 00	Druckschalter für Gaskontrolle/ pressure switch for gas control / manostat pour contrôle du gaz
M1	024 14 28 30	Drahtantriebsmotor kpl. mit B1 und X15 /wire drive motor compl. with B1 and X 15/ moteur d'entraînement de fil cpl. avec B1 et X15
S1	008 01 00 19	Taster rot, Maschine aus / push button red, machine off / bouton poussoir rouge machine arrêt
S2	008 01 00 21	Drucktaste schwarz, Gas von Hand / push button black, gas manual / bouton poussoir noir, gaz manuel
	008 01 00 22	Schaltelement 1xÖ, 1xS / circuit element 1xÖ, 1xS/élément de circuit 1xÖ, 1xS
S3	008 01 00 21	Drucktaste schwarz, Draht von Hand / push button black, wire manual / bouton poussoir noir, fil manuel
	008 01 00 22	Schaltelement 1xÖ, 1xS / circuit element 1xÖ, 1xS/élément de circuit 1xÖ, 1xS
S4	043 08 18 00	Drahtfühler / wire sensor / capteur de fil
1X2	073 03 11 00	Schweißstromstecker 95 mm² / welding current plug 95 mm² / fiche du courant de soudage 95 mm²
2X2	073 03 18 00	Schweißstromkupplung 95 mm² / welding current coupling 95 mm² / accouplement du courant de soudage 95 mm²
3X2	073 03 23 00	Einbausteckerteil 95 mm² / built-in male connector 95 mm²/ connecteur male encastré 95 mm²
1X5	010 09 18 25	Tüllengehäuse / hood / capot
	010 09 18 23	40pol. Stiftteil / 40 pole multiple plug / fiche multiple à 40 pôles
	010 09 18 03	Crimpstift 0,75-1,0 mm² / crimp pin 0,75-1,0 mm²/ pin 0,75-1,0 mm²
	010 09 18 07	Codierstift / coding pin / cheville de codage
2X5	010 09 18 25	Tüllengehäuse / hood / capot
	010 09 18 24	40pol. Buchsenteil / 40 pole bush part / détrompeur à 40 pôles
	010 09 18 10	Crimpbuchse 0,75-1,0 mm² / crimp bush 0,75-1,0 mm² / douille 0,75-1,0 mm²
	010 09 18 08	Codierbuchse / coding bush / douille de codage
3X5	010 09 18 26	Anbaugehäuse / housing / embase
	010 09 18 23	40pol. Stiftteil / 40 pole multiple plug / fiche multiple à 40 pôles
	010 09 18 03	Crimpstift 0,75-1,0 mm² / crimp pin 0,75-1,0 mm² / pin 0,75-1,0 mm²
	010 09 18 07	Codierstift /coding pin / cheville de codage

Elektrische Stückliste für CK 78 D/R - Schalt.-Nr. 2568 /
Electrical parts list for CK 78 D/R - Diagram No. 2568 /
Liste des pièces électriques pour CK 78 D/R - Schéma no. 2568

Pos.	Bestell-Nr./Ref.-No./ Référence	Bezeichnung / Description / Désignation
1X6	010 09 13 00	Tüllengehäuse / hood / capot
	010 09 18 28	15pol. Stiftteil / 15 pole multiple plug / fiche multiple à 15 pôles
	010 09 18 05	Crimpstift 0,2 mm² / crimp pin 0,2 mm² / pin 0,2 mm²
	010 09 18 07	Codierstift (bei C1 und A5)/ coding pin (for C1 and A5) / cheville de codage (pour C1 et A 5)
2X6	010 09 13 00	Tüllengehäuse / hood / capot
	010 09 18 29	15pol. Buchsenteil / 15 pole bush part / détrompeur à 15 pôles
	010 09 18 80	Crimpbuchse 0,14-0,37 mm² / crimp bush 0,14-0,37 mm²/ douille 0,14-0,37mm²
	010 09 18 08	Codierbuchse (bei C1 und A5) /coding bush (for C1 and A5) / douille de codage (pour C1 et A5)
3X6	010 09 13 01	Anbaugehäuse / housing / embase
	010 09 18 28	15pol. Stiftteil / 15 pole multiple plug/ fiche multiple à 15 pôles
	010 09 18 05	Crimpstift 0,2 mm² / crimp pin 0,2 mm² / pin 0,2 mm²
	010 09 18 03	Crimpstift 0,75-1,0 mm² / crimp pin 0,75-1,0 mm²/ pin 0,75-1,0 mm²
	010 09 18 07	Codierstift (bei C1 und A5) / coding pin (for C1 and A5) / cheville de codage (pour C1 et A5)
X9	073 03 10 00	Schweißstromanschluß Plus für Pistole / welding current connection positive / raccord du courant de soudage positif pour la torche
X10	010 09 10 01	Anbaugehäuse / housing / embase
	010 09 18 12	25pol. Buchsenteil / 25 pole bush part / détrompeur à 25 pôles
	010 09 18 80	Crimpbuchse 0,14-0,37 mm² / crimp bush 0,14-0,37 mm²/ douille 0,14-0,37 mm²
	010 09 18 10	Crimpbuchse 0,75-1,0 mm² / crimp bush 0,75-1,0 mm² / douilla 0,75-1,0 mm²
	010 09 18 07	Codierstift (bei C1 und A9) / coding pin (for C1 and A9)
X11	011 03 67 13	12pol. Buchsengehäuse 5,08 / 12 pole bushing housing 5,08 / embase à douille à 12 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm²,verzinnt / crimp bush 0,2-0,8mm² ,tinned/ douille 0,2-0,8 mm², étamée
X12	011 03 67 10	6pol. Buchsengehäuse 5,08 / 6 pôle bushing housing 5,08 / embase à douille à 6 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm²,verzinnt / crimp bush 0,2-0,8mm², tinned / douille 0,2-0,8mm², étamée
X13	011 03 67 13	12pol. Buchsengehäuse 5,08 / 12 pole bushing housing 5,08 / embase à douille à 12 pôles 5,08
	011 03 67 02	Crimpbuchse 0,2-0,8mm²,verzinnt / crimp bush 0,2-0,8mm², tinned / douille 0,2-0,8mm², étamée
X14	035 02 03 01	Gehäuse 2pol. für Flachsteckhülse / 2 pole housing for receptacle / embase à 2 pôles pour alvéole
	035 02 00 31	Flachsteckhülse 6,3 / receptacle 6,3 / alvéole 6,3
X15	011 03 19 08	10pol. Federleiste / 10 pole multiple contact socket / connecteur femelle à 10 pôles
	011 03 19 09	Zugentlastungsbügel / strain releif clamp / archet d'antitraction
	038 13 22 00	10pol. Flachbandkabel ca. 650 mm lang / 10 pole flat cable, approx. length 650 mm / câble plat à 10 pôles, longueur environ 650 mm
Y1	032 02 05 00	Magnetventil für Schutzgas / solenoid valve for shielding gas / électrovanne pour gaz protecteur
Y2	032 02 47 00	Magnetventil für Pistole ausblasen, 24 V / solenoid valve for torch blow-through, 24 V / électrovanne pour soufflage de l'air de la torche
		Option: Wasser ausblasen / Option: water blow-through / Option: soufflage de l'eau
A2	033 24 88 10	Steuerpl. Wasser ausblasen, Schalt.-Nr. 2372/ control board water blow-through, diagram No. 2372 / platine de commande pour soufflage de l'eau, schéma no. 2372
V1	029 06 05 00	Diode 1N4003 / Diode 1N4003 / Diode 1N4003
Y3	032 02 47 00	Magnetventil für Wasser ausblasen, 24 V / solenoid valve for water blow-through, 24 V / électrovanne pour soufflage de l'eau

Die Pumpen 023 03 35 00, 023 03 36 00 und 023 03 36 10 enthalten serienmässig einen Wasserfilter. Dieser wird ab August 2000 nicht mehr von uns entfernt.
Damit bei verschmutzem Filter der Schweissbrenner nicht verbrennt (wenn ein optionaler Wasserdurchflusswächter nicht eingebaut ist), muss der Filter in regelmässigen Abständen gereinigt werden. Die Intervalle richten sich nach der individuellen Einschaltdauer der Geräte und dem Schmutzanfall. Eine allgemein gültige Zeitangabe kann von uns nicht gemacht werden.
Dazu ist das Schweissgerät vom Netz zu trennen, zu öffnen und der Filter der Pumpe zu entnehmen. Dieser befindet sich schräg unter dem Pumpenkörper unter einer Hutmutter. Der Filter kann unter fliessendem Wasser gereinigt werden.
Bei Nichtbeachtung kann der Schweissbenner durch Überhitzung Schaden erleiden!

The standard pumps No. 023 03 35 00, 023 03 36 00 and 023 03 36 10 are provided with a water filter, which will not be removed by us as of August 2000.
The filter must be cleaned in regular intervals to avoid that the welding torch burns when the filter is dirty (if an optional water flow switch is not installed). The intervals depend on the individual duty cycle of the machines and the degree of contamination. It is not possible to give you a general time interval.
The welding machine must be disconnected before opening. The filter - which is positioned below the pump body under a cap nut - is removed and cleaned under running water.
Otherwise, the welding torch may be damaged due to overheating !

En série, les pompes 023 03 35 00, 023 03 36 00 et 023 03 36 10 sont pourvues d'un filtre d'eau. A partir du mois d'Aout 2000, celui-ci ne sera plus enlevé par nous.
Le nettoyage du filtre à intervalles réguliers est nécessaire pour éviter un brûlage de la torche de soudage à cause d'un filtre contaminé (si un contrôleur de débit d'eau, que l'on peut obtenir en option, n'est pas installé). Les intervalles dépendent du facteur de marche individuel du poste de soudage et du degré de polllution; une information universelle en ce qui concerne les intervalles n'est pas possible.
Pour cela, le poste de soudge doit être débranché, ouvert et le filtre doit être enlevé de la pompe. Le filtre se trouve en bas du corps de la pompe, sous un écrou à chapeau. Il faut nettoyer le filtre sous l'eau courante.
En cas de non-respect, la torche de soudage peut être détruite par surchauffe !

Allg. Informationen
General information
Informations générales

Pumpe mit Lüfter und Haube 230V/50...60Hz / Pump with fan and hood 230V/50...60Hz / pompe avec ventilateur et capot 230V/50...60Hz, Bestell-Nr. / Part No. / Référence 023 03 35 00
bestehend aus: / consisting of: / composé de:
- Motor mit Kondensator / motor with capacitor / moteur avec condensateur 023 03 35 01
- Pumpe / pump / pompe 023 03 35 02
- Befestigungsschelle / bracket / bride de fixation 023 03 35 03

Pumpe ohne Lüfter und Haube 230V/50Hz / pump without fan and hood 230V/50Hz / pompe sans ventilateur et capot 230V/50Hz, Bestell-Nr. / Part No. / Référence 023 03 36 00
bestehend aus: / consisting of: / composé de:
- Motor mit Kondensator / motor with capacitor / moteur avec condensateur 023 03 35 06
- Pumpe / pump / pompe 023 03 35 02
- Befestigungsschelle / bracket / bride de fixation 023 03 35 03

Pumpe ohne Lüfter und Haube 230V/60Hz / pump without fan and hood 230V/60Hz / pompe sans ventilateur et capot 230V/60Hz, Bestell-Nr. / Part No. / Référence 023 03 36 10
bestehend aus: / bestehend aus: / bestehend aus:
- Motor mit Kondensator / motor with capacitor / moteur avec condensateur 023 03 35 07
- Pumpe / pump / pompe 023 03 35 02
- Befestigungsschelle / bracket / bride de fixation 023 03 35 03

Ersatzfilter für Pumpe / spare filter for pump / filtre de rechange pour pompe	023 03 35 05
Kondensator 5µF für 50Hz / capacitor 5µF for 50Hz / condensateur 5µF pour 50Hz	023 03 35 08
Kondensator 4µF für 60Hz / capacitor 4µF for 60Hz / condensateur 4µF pour 60Hz	023 03 35 09
Reduzierstück R3/8 - R1/4 / reducer R3/8 - R1/4 / réducteur R3/8 - R1/4	032 03 00 80
Schwenk-Gewindetülle R1/4 / slewing threaded bush R1/4 / douille filetée orientable R1/4	023 03 28 06

Diese Teile sind auch einzeln erhältlich! / These parts can also be ordered separately / Ces pièces peuvent également être commandées séparément !

Die Pumpen 023 03 36 00 und 033 03 36 10 können auch durch die Pumpe 023 03 38 00 ersetzt werden!
Pumps No. 023 03 36 00 and 033 03 36 10 can also be replaced by pump 023 03 38 00 !
Les pompes 023 03 36 00 et 033 03 36 10 peuvent être remplacées par la pompe 023 03 38 00 !

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