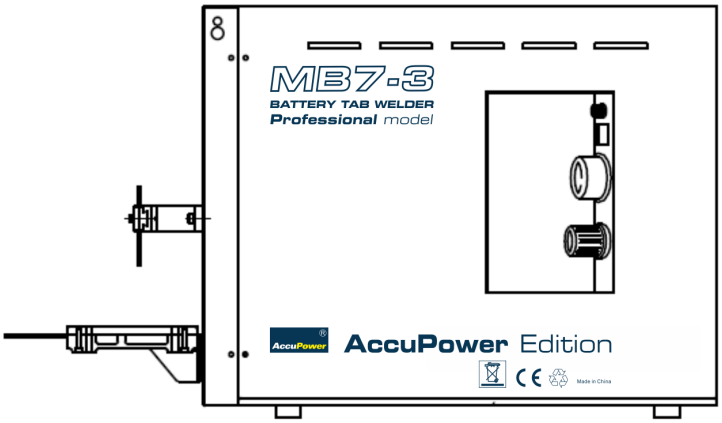
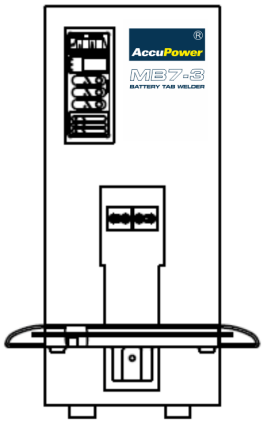
MB7-3

AccuPower Edition

BATTERY PACKS WELDING MACHINE

AKKU PACKS SCHWEISSMASCHINE





CONTENTS:

1] Specifications:

MODEL	MB7-3
POWER	8KVA
RATE VOLTAGE	110VAC/220VAC
POWER SUPPLY	
INPUT VOLTAGE	200-240VAC
PRIMARY CURRENT(NORMAL	15-30A
PRIMARY CURRENT(MAX)	30-60A
FREQUENCY	50/60HZ
POWER INPUT SOCKET	3LEGS
SECONDARY CURRENT	
SECONDARY CURRENT(NORMAL)	2500A
SECONDARY SHOT CIRCUIT CURRENT(MAX)	4500A
DUTY CYCLE	0.5%
WELDING CONTROL	
PRE WELD PULSE (MAX)	0-99
WELD PULSE (MAX)	0-99
WELD ENERGY STEPS	0-999
POWER COMPENSATING RATE	+30-40V
SECOND WELD PRESSURE TIME	0.2 SEC x 8
DIGITAL DISPLAY	SEGMENTS
ANALOGY DISPLAY	STEPS LED BAR
CONTROL PANEL	MEMBRANE SWITCH
CONTROL CIRCUIT	BOX MODULE
COMPUTER	BIT MICRO-PROCESSOR
MEMORY	EEPROM
OPERATING METHOD	MICRO SWITCH (FOOT)
WELDING HEAD	
CYLINDER DIA	20MM DIA
STOKE	20MM
LENGTH OF WELDING ARM	85MM
2 STEP PRESSURE DIFF	35%
ELECTRODES DIM	1.5/3MMX61X2
ELECTRODES APART	3.5-17MM
WORK TABLE DIM	174x100X28MM
WORK TABLE ADJ HIGH	77MM
ELECTRODE PRESSURE [MAX]	6.8KGS
WELDING HEAD CONSTRUCTION	6.8KGx2
LINEAR TWIN ARM EQUALIZER	
PNEUMATIC OPERATION	
INPUT PRESSURE [MAX]	7 kgf/cm^2
MIN OPERATING PRESSURE	2 kgf/cm^2
AIR CONSUMPTION /1000 STOKES	4300 CU CM
INPUT PORT	QUICK AIR COUPLER
HOSE DIA	5/16 BSP
COOLING SYSTEM	5/16 BSP
STATIC AIR COOLING	
OVER ALL	
OVERALL DIM	48X25X40CM
NET WEIGHT	45KGS
PACKAGE	
PACKAGE BOX	69X32X48CM
GROSS WEIGHT	47KGS
PACKAGE MATERIAL	3PLY CARTON BOX WITH POLYFOAM LAYER

(kgf/cm^2) => kilogram-force per square centimetre
(1 kgf/cm2 equals 98.0665 kilopascals)

NOTE:
Information and contents in this datasheet are for reference purpose only. They do not constitute any warranty or representation and are subject to change without notice.

2] Power input:

- Standard input source for the MB7-3 is 220 VAC 50HZ, current supply of 30 AMP or higher.
- For tailor made model, please refer to the rating label at the rear of the machine.

Note:

- Hence the welder is operating base on low duty cycle pulse energy, powered by a normal wall mount 13-15 Amp socket is acceptable. The machine has already quipped with a 13 Amp plug on the lead, but it can be replaced by another standard equal plug.

3] Air input:

- Standard Input air pressure from 8-10 kgf/cm^2, secure air hose to the enclosed air coupler and insert to the male nozzle at behind.

4] Installation of welding arms and electrodes:

- We provided two types of O.D.S [Aluminium oxide] welding electrodes both [1.5mm Ø and 3.0mm Ø] with relate electrode holders enclosed in the package.
- 1.5mm is a maintenance free electrode; it is suitable for welding thin tabs 0.127mm or below.
- For welding thicker tab, 3.0mm electrodes are recommended, as it can carry higher current to fashion thicker materials.
- . Sizes and shape of electrodes please refer to Fig 1.

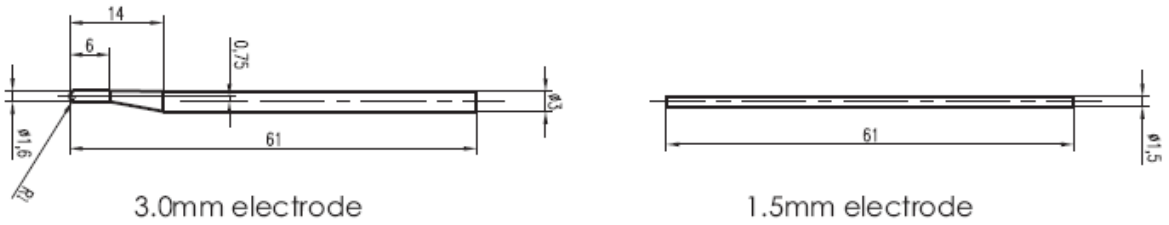


Fig1: Sizes and shape of electrodes

Electrode installation:

a) Screw welding arms into the taper holes at front of the welding head.
b) Chosen suitable electrode holder according to electrode size, and screw it together with electrodes to front end of the welding arms.

Clearance between electrodes can be adjust through below alignments:

a) Sliding movement spacing by left and right holders, shown in Fig 2a.
b) Swing movement by rotating hinges of two welding arms, shown in Fig 2b. As swing movement provides small clearance between electrodes, so it is more suitable for welding micro-batteries.

Details of welding arm sets please refer to drawing at page A5.

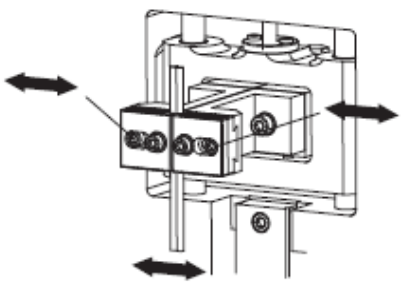


Fig 2a

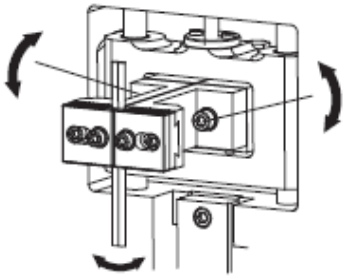
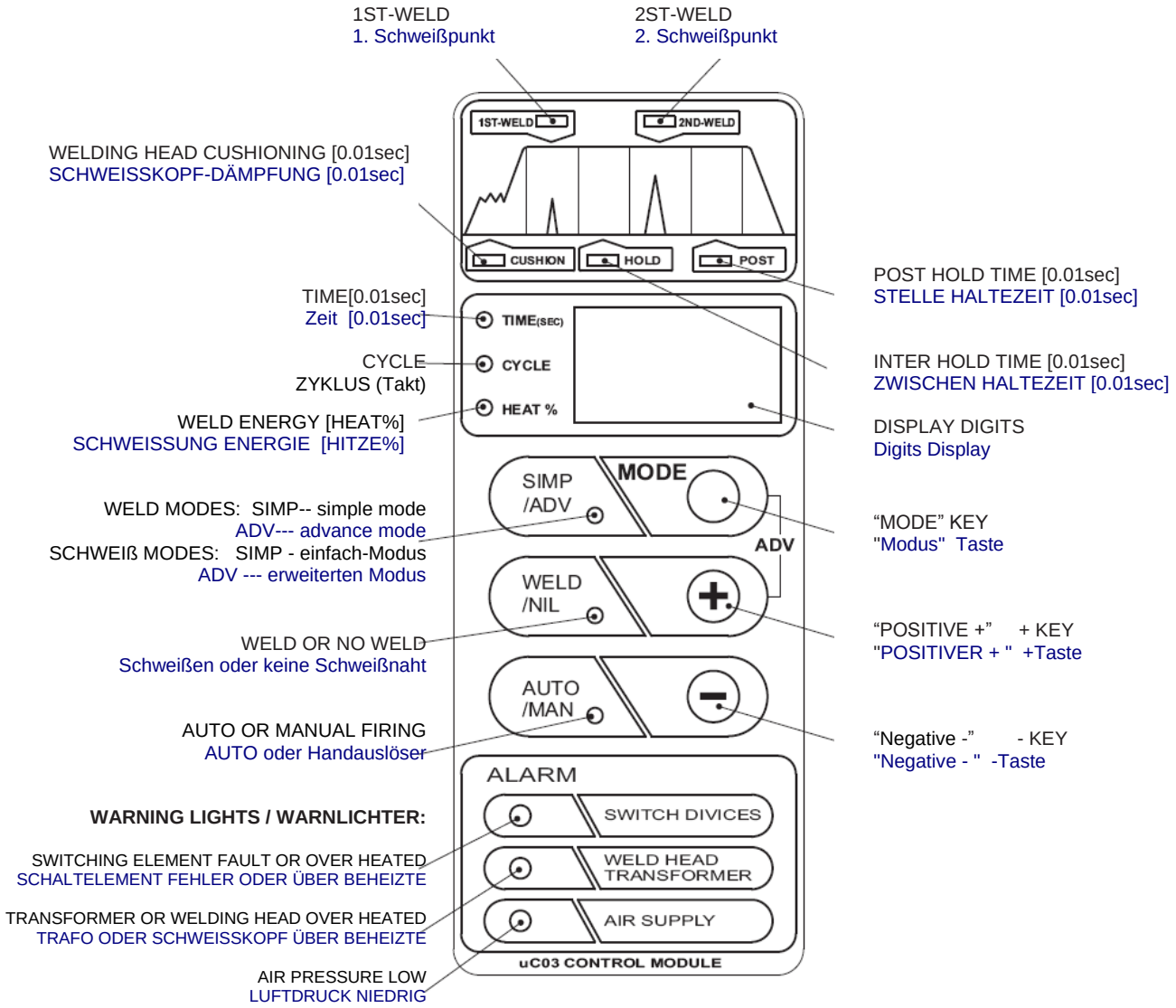


Fig 2b

5] uC-03 weld control panel:



Control surface
Bedienungsoberfläche

6] uC-03 WELD MODES:

The uC-03 weld controller provided five setting status in one working cycle, stated as CUSHION ----1ST WELD---HOLD -----2ND WELD -------- POST. Refer to Fig 4

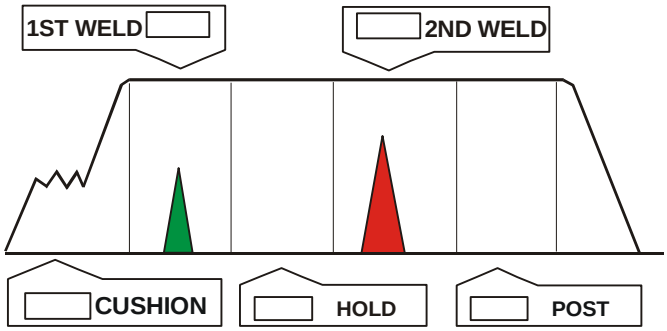


Fig 4. uC03 Setting status

CUSHION: Welding head downward cushioning time (Squeeze Time), carefully select of cushion time can reduces electrode impact to the lowest level. (*Squeeze Time is the time interval between the initial application of the electrode force on the work and the first application of current. Squeeze time is necessary to delay the weld current until the electrode force has attained the desired level)*

1st WELD: Set weld pulse [cycle] and energy [heat%] of first weld.

HOLD: Set holding time between 1st weld and 2nd weld.

2ND WELD: Set weld pulse [cycle] and energy [heat%] of second weld.

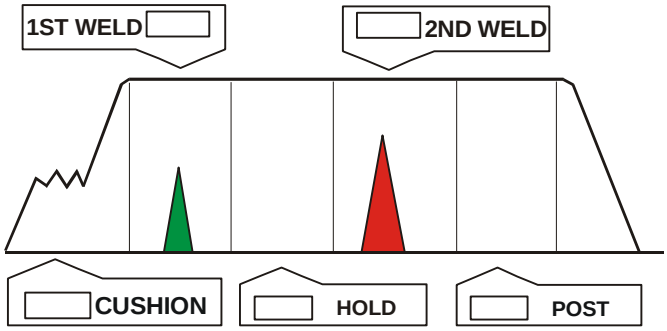
POST: Post cooling time, cooling welded points before release applied pressure. (Hold time is the time, after the welding, when the electrodes are still applied to the sheet to chill the weld. Considered from a welding technical point of view, the hold time is the most interesting welding parameter).

Weld time (Cycle)

Weld time is the time during which welding current is applied to the metal sheets. The weld time is measured and adjusted in cycles of line voltage as are all timing functions. One cycle is 1/50 of a second in a 50 Hz power system. As the weld time is, more or less, related to what is required for the weld spot, it is difficult to give an exact value of the optimum weld time.

Weld time should be as short as possible.

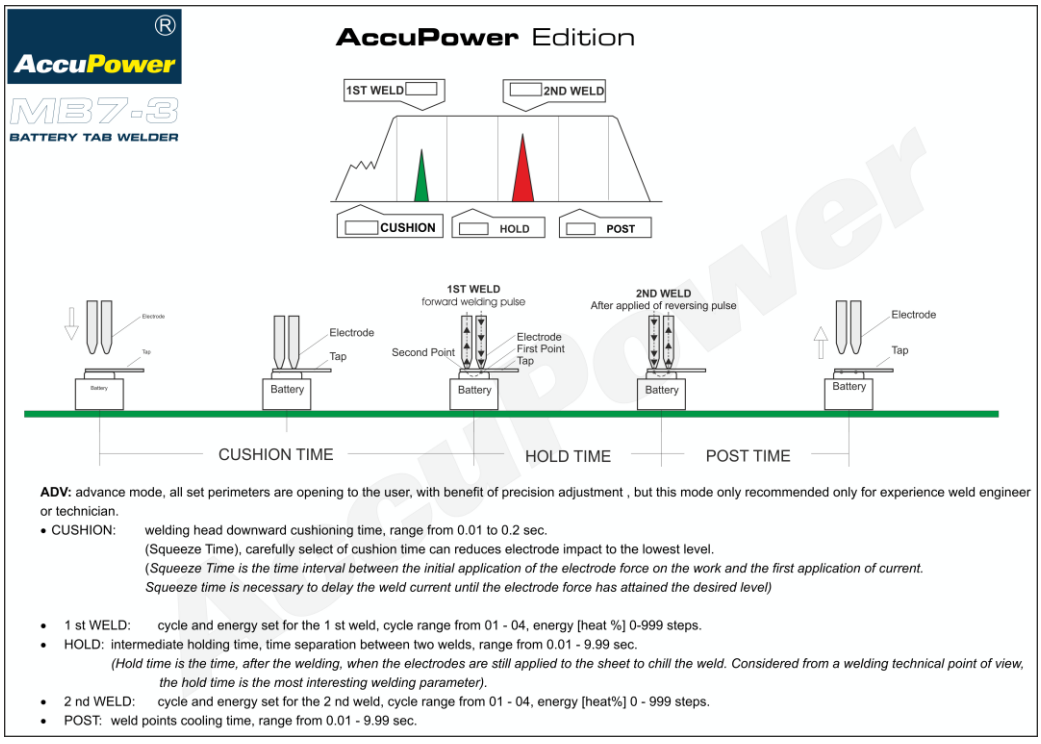
Weld modes:



advance mode Setting status

ADV: advance mode, all set perimeters are opening to the user, with benefit of precision adjustment , but this mode only recommended only for experience weld engineer or technician.

- CUSHION: welding head downward cushioning time, range from 0.01 to 0.2 sec.
- 1 st WELD: cycle and energy set for the 1 st weld, cycle range from 01 - 04, energy [heat %] 0-999 steps.
- HOLD: intermediate holding time, time separation between two welds, range from 0.01 - 9.99 sec.
- 2 nd WELD: cycle and energy set for the 2 nd weld, cycle range from 01 - 04, energy [heat%] 0 - 999 steps.
- POST: weld points cooling time, range from 0.01 - 9.99 sec.



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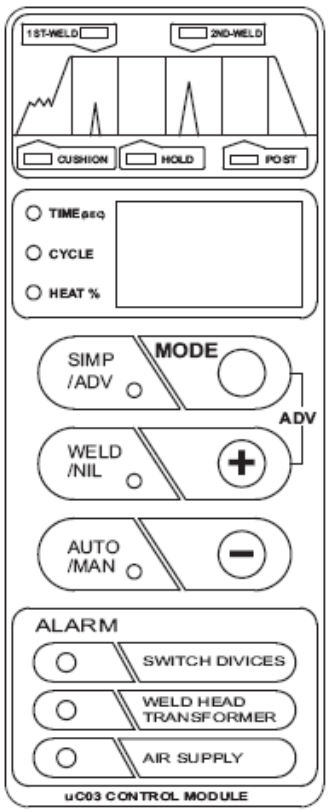
7] Setting of Weld mode “advance ADV “.

***NOTE:** *Be Sure* SIMP /ADV *lighted.*



In operation mode, Press MODE

2ND WELD and O HEAT% twinkling, entering 2ND weld energy adjustment.
Press ⊕ or ⊖ for selection of 2nd weld “heat%” , range 0-999 steps.
***NOTE:** if [2nd WELD] HEAT% set to “000”, control will sequential jump-over, also 2ND WELD doesn’t light.
Press MODE

2ND WELD and O CYCLE twinkling, entering 2ND weld cycle adjustment.
Press ⊕ or ⊖ for selection of cycle time, range 0-4 steps.

***NOTE:** if 2ND weld cycle set to “000”, control will sequential jump-over, also 2ND WELD doesn’t light.
Press MODE

POST and O TIME(SEC) twinkling, entering post cooling time adjustment.
Press ⊕ or ⊖ for selection range from 0.01 to 9.99 second.
Press MODE

CUSHION and O TIME(SEC) twinkling, welding head downward cushioning time adjustment.
Press ⊕ or ⊖ for selection range from 0.01 to 0.2 second.
***NOTE:** if cushion time set to “000”, control will sequential jump-over, also CUSHION doesn’t light. Suitable selection of cushioning time can reduce press-mark to minimum.
Press MODE

1ST WELD and O TIME(SEC) twinkling, entering 1ST weld energy adjustment.
Press ⊕ or ⊖ for selection of 1st weld “heat%” , range 0-999 steps.
***NOTE:** if [2nd WELD] HEAT% set to “000”, control will sequential jump-over, also 1ST WELD doesn’t light.
Press MODE

1ST WELD and O CYCLE twinkling, entering 1st weld cycle adjustment.
Press ⊕ or ⊖ for selection of cycle time, range 0-4 steps.

***NOTE:** if 1ST weld cycle set to “000”, control will sequential jump-over, also 1ST WELD doesn’t light.

Press MODE

HOLD and O TIME(SEC) twinkling, entering intermediate hold time adjustment.
Press ⊕ or ⊖ for selection, range from 0.01 to 9.99 second.
***NOTE: if intermediate hold time time set to “000”, control will sequential jump-over, also HOLD doesn’t light.
Press MODE

***NOTE:**
Any time when Long press of MODE will returns back to operation mode.

8] Use of WELD/NIL and AUTO/MAN keys.

WELD/NIL key:

. In operation mode, any press of WELD/NIL [+] key  , it controlling the turn on or turn off of weld energy, also indicating light shows status accordingly.
. It provided a benefit for initial setting up of weld energy, during the test weld,operator can easy select temporary set off the welding current to relocate weld position, than prress the key to release weld energy

AUTO/MAN key:

. With Auto function activated, once sensing signal from the foot switch, weld processes will automatically completed according to sequences set and stored in the computer memory.
. Once if function was turned off, the weld sequences will fully control by the operator, he/she can release the foot paddle in the middle to terminate the process. It is a useful function key hooking up with WELD/NIL key for perimeters set or initial test weld.
. During test weld, the operator can turned off both AUTO/MAN and WELD/NIL keys, then step down the foot switch, make sure welding pressure was fully applied to the joints, than press WELD/NIL [+] key to release weld energy.

9] Welding points electronic initial check (WPEIC). (Only available in special model)

. MB7-3 equipped with an advance electronic detecting system know as “welding points initial check”.
. Once if electrodes tips touching the tab surface, detecting signal will automatically send to the detecting circuit for checking conductivity level between tabs and electrodes.
    . If level been checked within the machine set range, the machine will release welding energy to weld the joints.
    . Otherwise it will considered as “bad weld”, processes will terminated and reset to it’s initial status, welding head returns back to normal position, as well as alerting operator with “beeping” sound.
. The benefits of WPEIC is to minimize over sparks / weld bursting, electrode saving and also preventing further false weld caused by bad contact.
. With the helps of WPEIC “welding points initial check”, we can easily achievied the goat both high efficiency and safety.

10] Tab welding by bi-directional current.

- In tab welding process, normally two points are weld together to form a joint. However for single pulse system, actually there is voltage drope when pulse current is passing through the first point ,which affects or weakening energy afterward to weld the second point, so variation of tightness is always found between points, in order to solve above problem, during setting up of weld energy, usually energy has set to a very higher level for welding the second point, the setting up can weld the second point successfully, but too much of weld energy has a bad side effect, that mades the first point over-welded, shown in Fig 4A
- MB7-3 was equipped with bi-directional twin pulses, also weld perimeters and direction of weld pulses can be set individually, the forward pulse current only taking care to weld the first point, another point will handling by the following reverse pulse. With the advantage of bi-directional weld, high quality and clean can be easily obtained

Bi-directional pulse setting up:

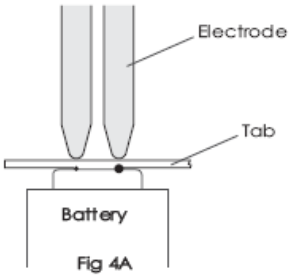


Fig 4A

*****Setting up of first pulse**

For bi-directional tab welding, use [1st WELD] set as first forwarding weld pulse, set to 01 cycle, slowly increase energy HEAT% until it is just enough to weld either one point, [2nd WELD]reverse pulse at this moment can temporary shut off by set cycle or HEAT% to 00, examing the tightness between two points by normal “tear-out” test method, if one of the point is tighten enough, negating another point may be still losing, the forwarding pulse energy set up is only set to weld either one point. shown in Fig 4B.

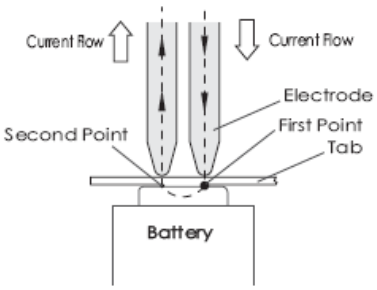


Fig 4B
forward welding pulse

*****Setting up of reversing pulse.**

Following we have to set the second reversing pulse [2nd WELD], same as before, set weld cycle to 01, repeating processes same as first pulse, slowly increase weld energy then test the points by “tear-out” method, until two secured joints both been obtained. The MB20-ADV already built in with computer program ensures [2nd WELD] polarity of second pulse was been reversed. Shown in Fig 4C.

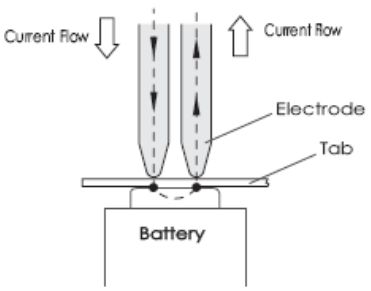


Fig 4c
After applied of reversing pulse

*****Function of [HOLD] time.**

- In bi-directional tab welding, hence the process applied twin pulse to the joint, total time taken for twin pulse should be longer than single pulse.
- Especially for welding thicker tabs, sometime fusion time may be long enough for points oxidizing with surrounding air and form burnt marks.
- Therefore it is necessary to add an intermittent cool time between two welds, let heat generated by the first pulse completely cold down then apply for the second weld.
- According to experience, with best result the selection of [HOLD] time is between 0.3-0.5 second [030-050].

*****Benefits of Bi-directional weld.**

- In single pulse tab welding, as it has a un-balance result between points , mentioned in [11], therefore obtaining for a secured jointts, weld energy has increased seriously to fusion up another “losing” point, as well as bad effects also occur at the same time, like over sparking, exceed weld remains and over-weld marks is always been found.
- On the other hand, bi-directional weld provided two paths for welding current with separation control of energy, the tightness of Points can be adjusting according to its decided level, so it is better energy system for tab welding.

11] Pressure system of MB7-3.

- Welding pressure are precisely control by “differential pressure control system” , we success applied the technology “pressure balance theory” to reduce impact causes by weight and movement of the welding head, by feeding a back pressure at a suitable time to absorb extra downward momentum. Without above limitations, button or coin batteries can be welded by light electrode force, so press-marks can be adjust and reduce to minimum.
- During setting, the operator just set the decided welding pressure according to “electrode force chart” printed on the right casing, plus careful selection of cushioning time [CUSHION] on the front membrane panel, satisfactory result can obtained easily.
- Tips for setting cushioning time [CUSHION].
- The [CUSHION] sector on the membrane panel is use for setting cushioning time, it is setting of suitable timing to apply back pressure to reduce down impact, therefore a suitable selection of cushioning time is very important, since it affects both weld quality as well as work efficiency.
- Recommended first set longer time on [CUSHION] time, i.e. 0.20 sec, gradually decreased to a satisfactory level by try and error method, by observation from the down movement of welding head, Too short of [CUSHION] setting can not has enough time to feed back pressure to damp the impact force, but set for long time will increase the idling time as well as with effect of losing work efficiency.

12] Tips for better operation.

1. Sufficient weld pressure is necessary to provide good electrical conductivity to the joints. Extra press-marks shell appears by applying high welding pressure, but too low of weld pressure may cause strong spark or bursting, both damaging work pieces and welding electrodes.
2. When setting the welding pressure and energy, it is a general rule of thumb to initially set the air pressure at a higher level and weld energy [HEAT%] to a lower level. Then gradually decrease of pressure and increase of weld energy to obtain smooth, clean and reliable joints.
3. How does pressure affect the weld result. Too high of weld pressure results obvious press-mark left behind On the finished weld joints, whereas too low of weld pressure results more sparks and/or if weld energy can not passes through work piece, bursting will occur.
4. How does the weld energy [HEAT%] affect the weld result. Too much of weld energy results obvious over-welded, sparks occur during processing and flues left around the finished joints, whereas too low of weld energy results of loose or fault joints, usually burnt mark appeared.
5. How does weld time [CYCLE] affect the result. For battery welding, basically the process is applying very high welding current to weld the tabs but at a sudden, therefore longer weld time setting should be not necessary, especially for welding thin tabs, setting for 01 is enough to weld the parts, however if found welding point brittle or flues left behind, it is recommended add up to 02 to low down of energy relaxation. But if tabs with oxides on the surface or can not provide a good conductivity result on welding, it is better to insert a [1st WELD] to pre-weld it as first treatment, then follow by the [2nd WELD] to weld the parts. But remember too long of welding time, joints will oxidization by surrounding air, burnt-mark may form.
6. How does electrode tips apart affect. Tab welding basically is a series weld process, as the welding takes place on the top surface of the tab and work pieces, short circuit always occur between tabs and electrodes, these phenomena causes bad effect know of bi-paths in tab welding. In order to minimize the affect and reduce shot circuit current, a suitable adjustment of tip aperture is necessary, as high short circuit current will generate heat on the tab surface and formed burnt-mark, especially for welding thicker tabs.
7. Why you needed to re-adjust weld energy periodically. After a period of welding, the welding tips will become larger due to wear off. At that moment you have to either raise up a little bit of weld energy HEAT%, to over come energy loose caused by the increment of tip diameters, otherwise loosen joint will occur. But once if tip wearied serious ally, machine the size back to it’s original dimension are necessary.

13] Safety, care and maintenance.

WARNING:

This equipment is intended to be electrically grounded. Your MB7-3 is equipped with a three wires lead cable and ground plug [a plug that has third" grounding" leg]. This plug will fit only grounded AC outlet. This is a safety feature. Do not defeat purpose of the ground connection!

. The power cord or plug becomes frayed or otherwise damaged.
. Your welder is exposed to rain or under any excess moisture environment.
. Your welder has been dropped or the case has been damaged.
. Your suspect that your welder is not in proper condition.
. Before open the case for further repairing or maintenance.
. You want to clean the case or when damping water from the air filter.

Be sure you always do the following:

. Never unplug the equipment from AC outlet when it is under electrically ON condition.
. Make sure the two electrodes are not installed as close circuit, always with a gap in between.
. Always turn your welder OFF when is not operated.
. Frequency check tips of two electrodes and keep them clean.
. Keep your welder away from water and source of liquids.
. Protest your welder from dampness of wet weather.
. Periodically empty excessive water inside the air filter.
. Disconnect both electrical and pneumatic sources, when equipment will not be use for a long period.
. Keep this user manual for reference or pass to the new operator if required.
. Follow instructions and warnings dealing with your equipment.
. For setting up new weld perimeters, remember always reduce its initial energy to lowest.

Working with comfort:

When you work with your equipment, make sure you are positioned the machine at elbow height, that you can use the located platform as working table.

14] Trouble shooting.

MB7-3 is precisely controlled by a unique 8 bit microprocessor comes with built in self-diagnosis and circuit feature.

- Over-heated and over-load detection. Once the condition is exceeded the safety limit affecting and/or potential damaging the welder from normal operation, the circuitry automatically cut off the welding circuit preventing welder being damaged and possible injured to the operator.
- In parallel the microprocessor sends out a signal to light the related ALARM lamp and activate "beep" sound to alert the operator.

Problem and cause:

PROBLEM	CAUSE
1] No display after power up	a] electronic or power fuse was blown. b] Main ON/OFF switch been damaged. c] Main microprocessor control box damaged
2] Display show "00" and alarm lamp flashing/ Alarm sound on, No reaction on foot switch	a] no or no enough air pressure inlet. b] Too low of air regulation. c] Air solenoid valve damaged. d] Pneumatic network broken. e] Main control box damaged.
3] Welding head doesn't action, when Switch was pressed.	a] foot switch damaged. b] Air solenoid valve damaged. c] Air cylinder or welding head damaged.
4] Welding head don't return to its Original position,	a] too slow of up-ward speed chosen [air speed control knob behind]. b] Air solenoid valve damaged. c] Main control box damaged.
5] No welding energy.	a] Weld/nil key was activated. b] Main protecting fuse burnt. c] Protecting circuit broad damaged. d] Both two power thyristors were damaged. e] Main control box damaged.
6] Unstable of welding energy.	a] Main control box damaged. b] Bad contact in connectors. c] One thyristor has damaged. d] Power line interference. [Check power lines by Electronic oscilloscope].
7] Abnormal indication	a] check main microprocessor control box.
8] ALARM lamp flashing/ warning sound.	a] Switching thyristor damaged. b] Main control damaged.

15] Part lists [important parts]

a] ELECTRICAL

PART NO	PART NAME	QTY
	Welding transformer	1 pcs
022-1-167	Supply transformer 220/ 18+6+6V	1 pcs
022-1-168	Main fuse 30A	1 pcs
022-1-170	Main switch 400V 30A	1 pcs
022-1-171	power cable 3 wires	1 pcs
022-1-172	power plug 3 legs	1 pcs
022-1-173	magnet contractor SK10	1 pcs
022-1-189	foot switch	1 pcs
022-1-175	12 ways terminal block	1 pcs
022-1-176	thyristor 400V 30A	2 pcs
022-1-177	power resistor 390 ohm 20w	1 pcs
022-1-178	power resistor 25 ohm 20w	1 pcs
022-1-179	myler capacitor 0.47 uf 630V	2pcs
022-1-180	varistor bbc 275s 20k	1 pcs
022-1-181	2 ways connector male/female	1 set
022-1-182	2 ways connector male/female	1 set
	protecting circuit board	1 unit
	main control circuit board	1 unit

b] PNEUMATIC

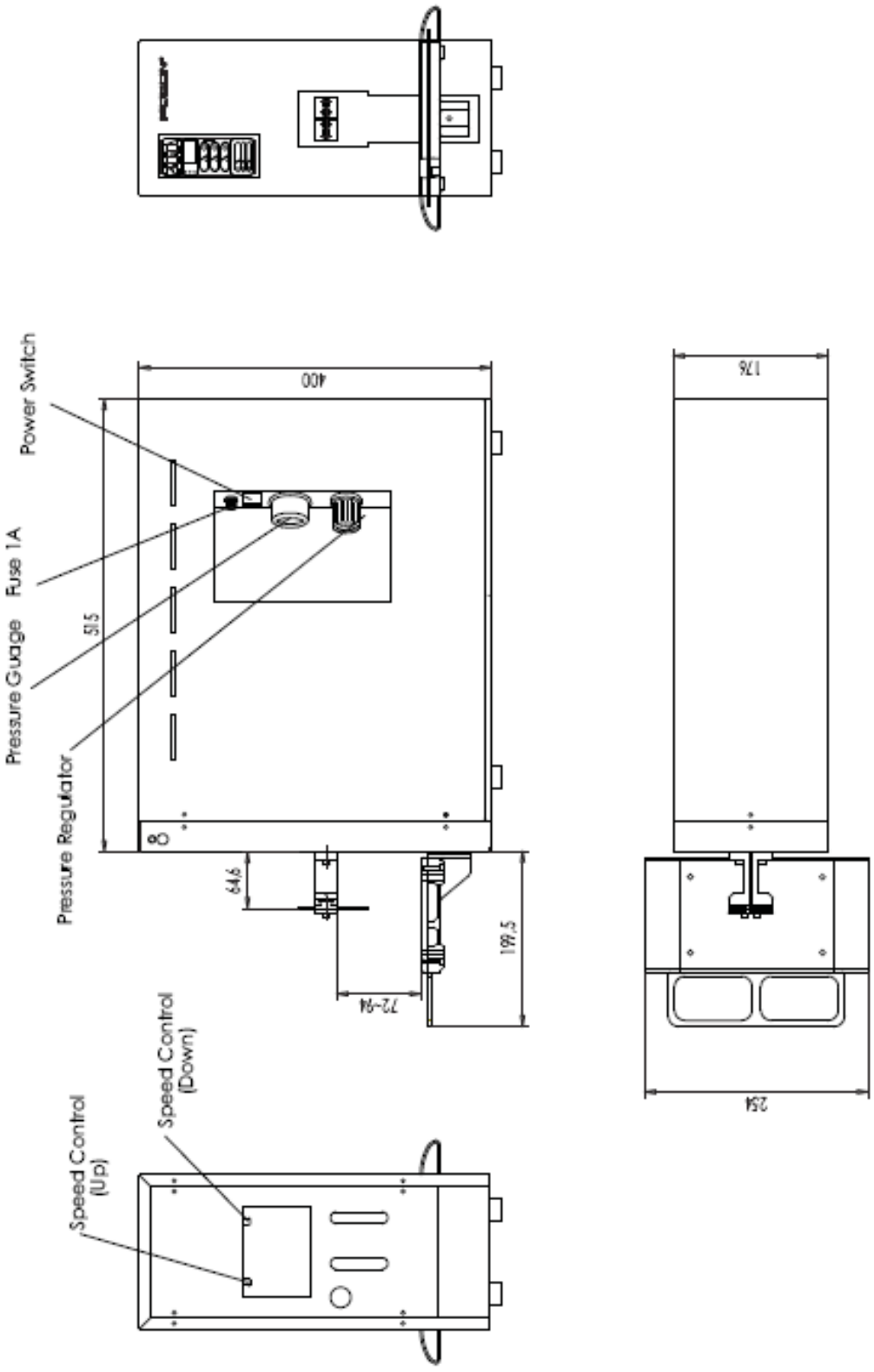
PART NO	PART NAME	QTY
022-10-82	air cylinder bima 041-d #y1	1 pcs
	Differential cylinder	1 pcs
022-10- 96	air solenoid	2pcs
022-10-89	speed control/ silencer	1 pcs
022-10-71	air regulator	2pcs
022-10-90	pressure gauge	1 pcs
022-10-76	air filter/ lubricator set	1set
022-10-95	air connector “y”	1 pcs
	air coupler male	1 pcs
	air coupler female	1 pcs
022-10-98	air hose d5/d3 3 meters	1 set

c] CASING AND WELDING HEAD.

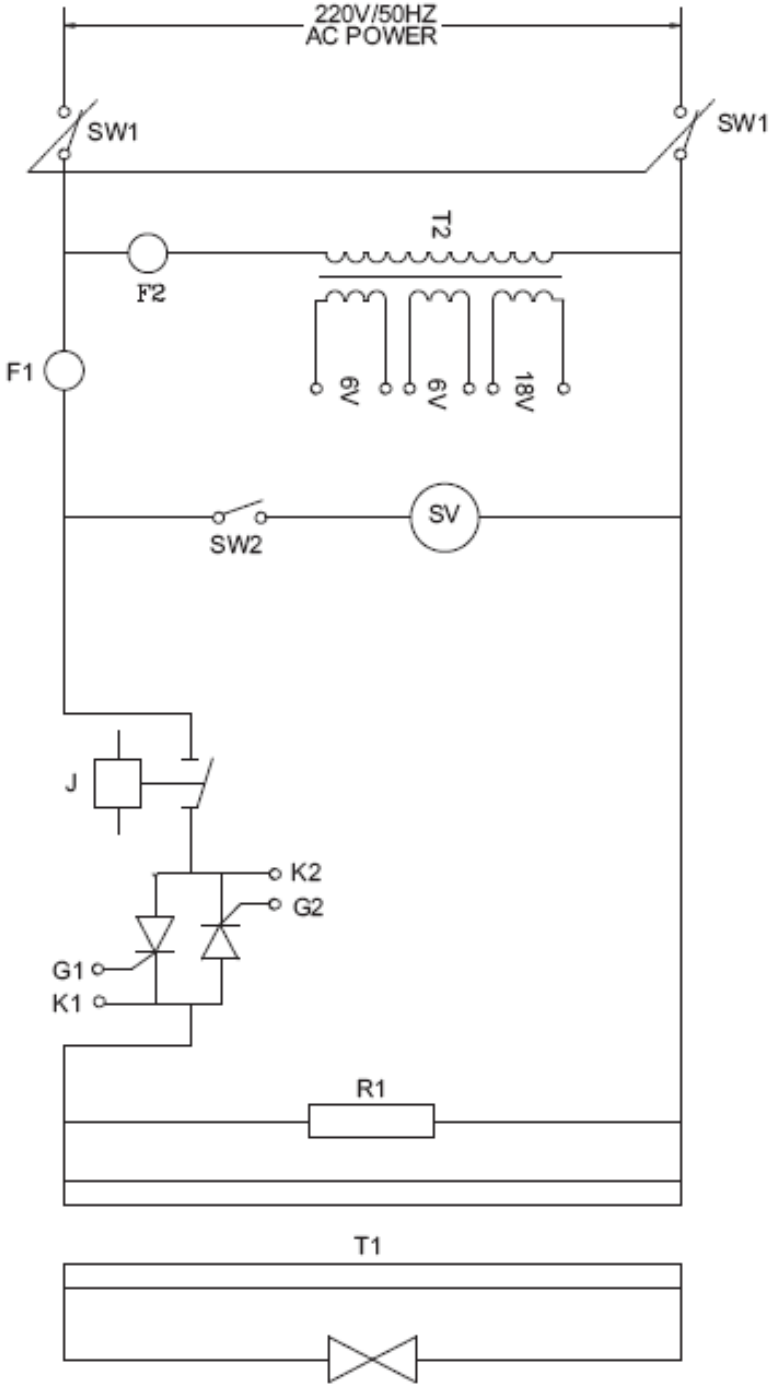
PART NO	PART NAME	QTY
	Metal case	1 set
012-3-206	magnetic locator	2 pcs
	welding head	1 set
	electrode holder	2 sets
	welding arm	1 set
	welding electrode 1.5mmD	1 set
	welding electrode 3.0mmD	1 set
	work table	1 pcs
	tab plastic container	2 pcs

16] Reference drawings:

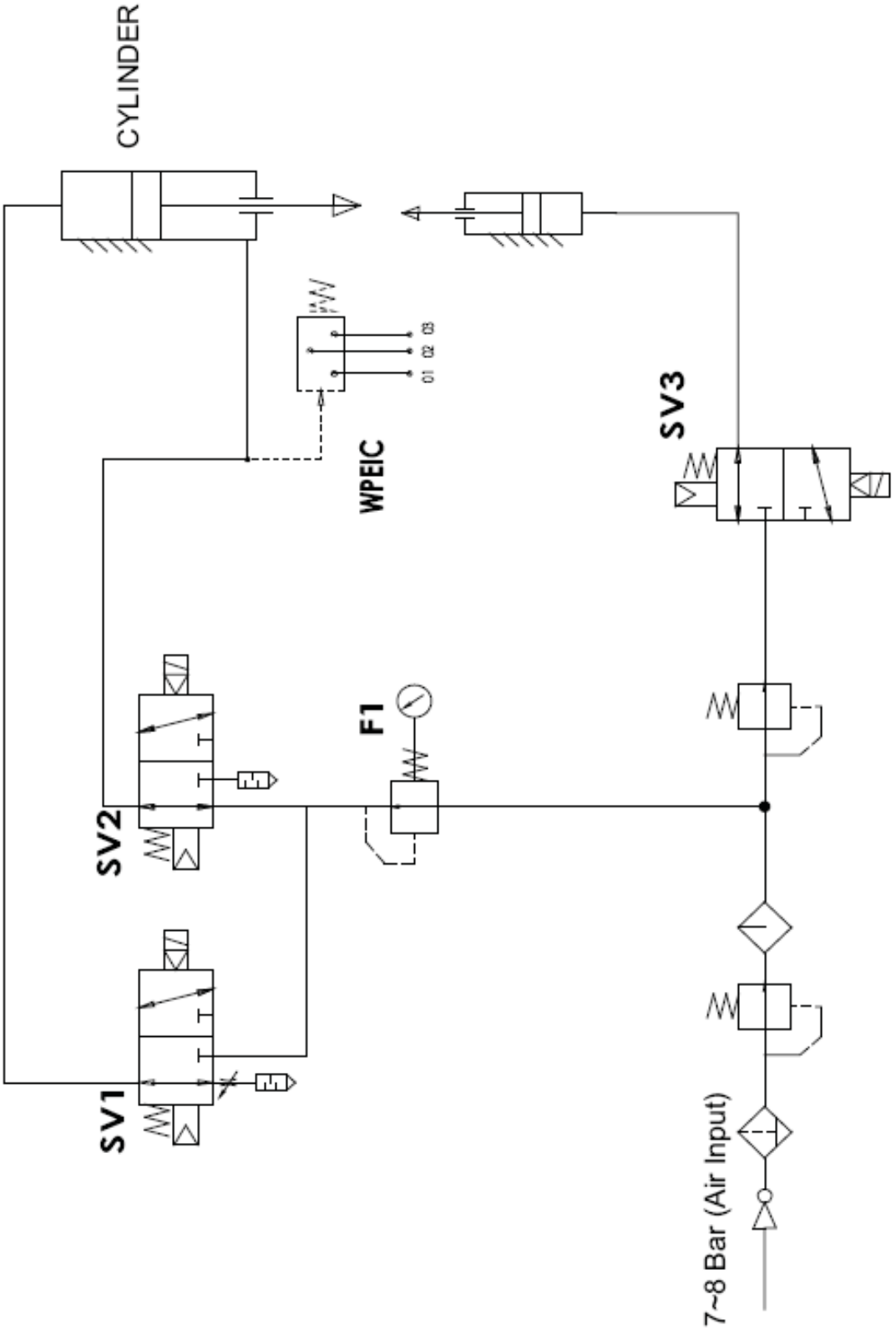
d] Overall dimensions:



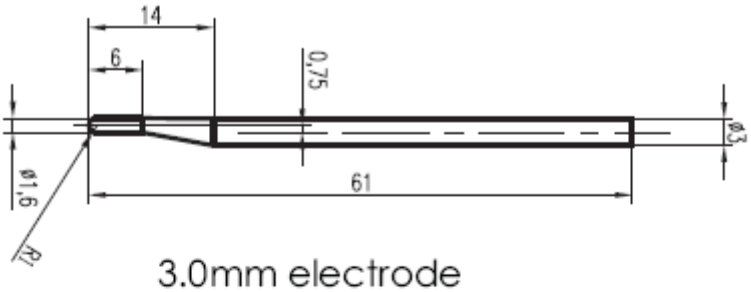
b] Electrical schematic:



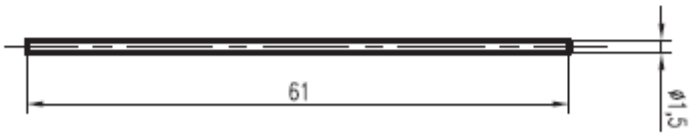
C] Pneumatic schematic:



d] Welding electrodes:



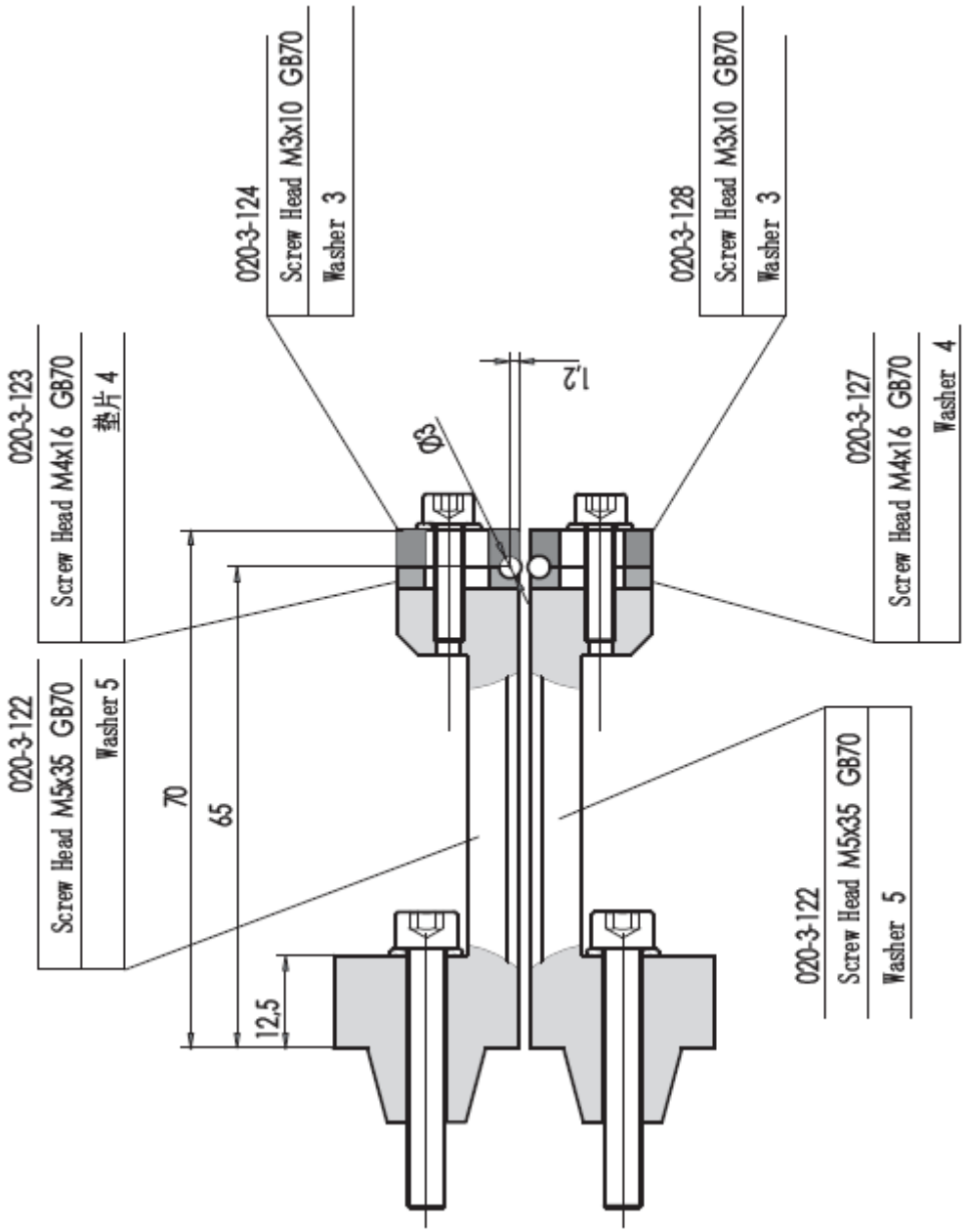
3.0mm electrode



1.5mm electrode

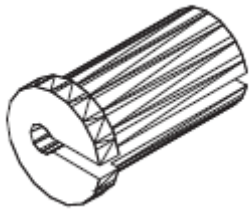
e] Welding Arm:

1. Arm for welding electrodes (Dia=3mm):

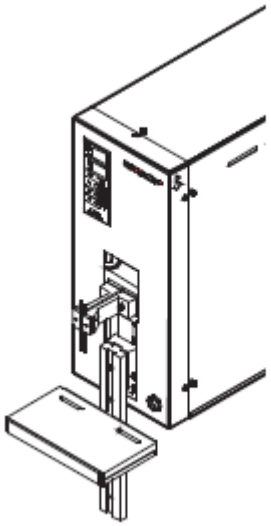


17] Accessories.

Part no: 022-1-103
Off-set lathing fixture for 3.0mmD electrode.



Lath fixture for machining 3mm D off-center welding electrode.



Part no: 022-1-104
Extension beam for work table.

Low down work table up to 220-230mm. Add extension beam between lower slider and work table, long Batteries or batteries connecting in series can be weld successfully.

18] Safety Information:

Use the welding power supply as indicated in the instruction manual. Improper use of this welding power supply can be dangerous for persons, animals or objects.
The user of the welding power supply is responsible for his own safety and the safety of others. It is important to read and understand this instruction manual. Repair and maintenance must be carried out by qualified persons. Maintain the machine in good condition (keep clean and dry etc). During welding do not locate the machine in a confined space or close to a wall, which will block air outlets.

Do not weld on containers or pipes that hold or have held flammable liquid or gases (danger of explosion) or on materials cleaned with chlorinated solvents or on varnished surfaces (danger of toxic fumes).

Protection for Wearers of Pacemakers Magnetic fields from high currents can affect pacemaker operation. Persons wearing electronic life support equipment (pacemaker) should consult with their doctor before going near arc welding, gouging, or spot welding operations.
To Prevent Against Shock Keep body and clothing dry. Never work in damp area.

Attention! Through high currents cause magnetic fields.

19] Environmental Protection and Symbols:

Information for (private households) for the environmentally responsible disposal of Waste Electrical and Electronic Equipment (WEEE)

This symbol on products and or accompanying documents indicates that used and end of life electrical and electronic equipment should not be disposed of in household waste. For the proper disposal, treatment, recovery and recycling, please take these products to designated collection points. Please contact your local authority for further details of your nearest designated collection point.

FOR BUSINESS USERS IN THE EUROPEAN UNION.
If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information. Information on Disposal in other Countries outside the European Union. This Symbol is only valid in the European Union.
If you wish to dispose of this product, please contact your local authorities or dealer and ask for the correct method of disposal.

Symbols:

Conforms to relevant safety standards.
EN 60974-1:2012

Waste electrical products: should not be disposed of with household waste.

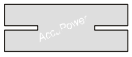
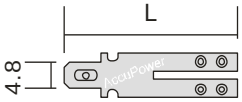
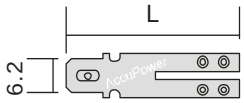
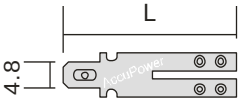
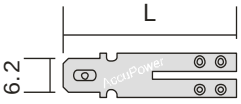
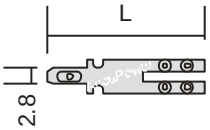
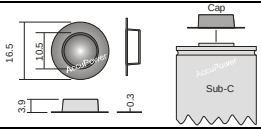
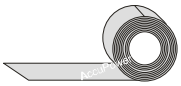
Recycling: Please recycle where facilities exist.
Check with your Local Authority or retailer for recycling advice

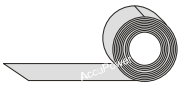
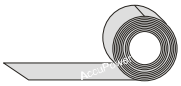
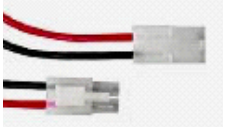
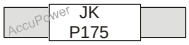
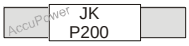
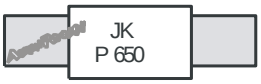
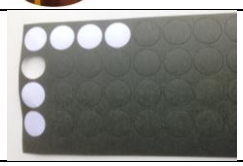
Warning! Electrical welding process

Protect operator and passer eye from the effect of uV radiation.
This can cause permanent damage to the eye. Make sure the arc and resulting flash is shielded at all times.

19] Material for Battery Packs

The following materials for battery pack assembly can be purchased from AccuPower
Folgende Materialien für Akkupacks Montage sind von AccuPower zu Beziehen

welding tags	Drawing	MOQ Unit
H3010020 H-Size 30 x 10 mm, thickness 0.20 mm		100 Pcs.
H3008020 H-Size 30 x 8 mm, thickness 0.20 mm		100 Pcs.
H4009020 H-Size 40 x 9 mm, thickness 0.20 mm		100 Pcs.
H230820 H-Size 23 x 8 mm, thickness 0.20 mm		100 Pcs.
RS2807020 connecting plate 28x5 mm, thickness 0.2 mm		100 Pcs.
Single Rod 21.5*2.4 (Ø0.8)		100 Pcs.
T4-3308040 T-Size 33 x 8 mm, thickness 0.4 mm		100 Pcs.
T6-3308040 T-Size 33 x 8 mm, thickness 0.4 mm		100 Pcs.
T4-2608040 T-Size 26 x 8 mm, thickness 0.4 mm		100 Pcs.
T6-2608040 T-Size 26 x 8 mm, thickness 0.4 mm		100 Pcs.
T2-2408035 T-Size 24 x 8 mm thickness 0.35 - 0.4 mm		100 Pcs.
SQ3010020 right-angled connecting plate30 x 9 mm, thickness 0.2 mm		100 Pcs.
SQ3010020 right-angled connecting plate30 x 9 mm, thickness 0.2 mm		100 Pcs.
CAP-SC thickness 0.30 mm		10 Pcs.
TR09030 Tag-Roll Width x Thickness: 9mm x 0.3mm		0,25 kg.

TR08020 Tag-Roll Width x Thickness 8mm x 0.2mm		0,25 kg.
TR10020 Tag-Roll Width x Thickness 10mm x 0.2mm		0,25 kg.
Tamiya Plug Paar 620006 PP Bat. 610008 PP load		10 Set.
Racingpack Cops Paar	Plastic Cops Paar for Battery Packs	10 Set.
TB02B-B8D-50 Thermister		100 Pcs.
PTC / JK-P175 Polymer PTC Resettable Fuse I_H: 1.75Amp. V max: 16V, R: 0,040 - 0,080 Ω @ 25°C		100 Pcs.
PTC / JK-P200 Polymer PTC Resettable Fuse I_H: 2.00Amp. V max: 16V, R: 0,025 - 0,045 Ω @ 25°C		100 Pcs.
PTC / JK-P350 Polymer PTC Resettable Fuse I_H: 3.50Amp. V max: 16V, R: 0,017 - 0,031 Ω @ 25°C		100 Pcs.
PTC / JK-P450 Polymer PTC Resettable Fuse I_H: 4.50Amp. V max: 16V, R: 0,011 - 0,020 Ω @ 25		100 Pcs.
PTC / JK-P550 Polymer PTC Resettable Fuse I_H: 5.50Amp. V max: 16V, R: 0,011 - 0,020 Ω @ 25°C		100 Pcs.
PTC / JK-P650 Polymer PTC Resettable Fuse I_H: 6.50Amp. V max: 16V, R: 0,011 - 0,020 Ω @ 25°C		100 Pcs.
Kapton tape Roll **10mm or 30mm width**		5 Rolls
Fishpaper for Isolation **Size: 18650 or Sub-C**		1000 Pcs.

info@accupower.at
www.accupower.at