

WELDING TRANSFORMER
MT-510AC

OPERATION MANUAL



Thank you for purchasing our Welding Transformer **MT-510AC**.

- This operation manual explains its method of operation and precautions for use.
- Before using, read this operation manual carefully; after reading, save it in a proper place where you can easily access.

Contents

1. Special Precautions	1
2. Features	5
3. Specifications.....	5
4. Description of Operation	6
5. Wiring	7
6. Other Information.....	7
7. Outline Drawing	8

1. Special Precautions

(1) Safety Precautions

Before using, read "Safety Precautions" carefully to understand the correct method of use.

- These precautions are shown for safe use of our products and for prevention of damage or injury to operators or others. Be sure to read each of them, since all of them are important for safe operation.
- The meaning of the words and symbols is as follows.



Denotes operations and practices that may imminently result in serious injury or loss of life if not correctly followed.



Denotes operations and practices that may result in serious injury or loss of life if not correctly followed.



Denotes operations and practices that may result in personal injury or damage to the equipment if not correctly followed.



These symbols denote "prohibition". They are warnings about actions out of the scope of the warranty of the product.



These symbols denote actions which operators must take.



Each symbol with a triangle denotes that the content gives DANGER, WARNING or CAUTION to the operator.



Do not touch the inside of the Equipment unnecessarily.

Since very high voltages are charged to the inside of this Equipment, it is very dangerous to touch it unnecessarily. Any person other than service personnel, or authorized representatives' personnel must not touch the inside.



Never disassemble, repair or modify the Equipment.

These actions can cause electric shock and fire.

If any part needs to be checked or repaired, contact us or your distributor for help.



Never burn, destroy, cut, crush or chemically decompose the Equipment.

This product incorporates parts containing gallium arsenide (GaAs).

WARNING



Do not put your hands between the electrodes.

When welding, keep your fingers and hands away from the electrodes.



Do not touch any welded part or electrodes during welding and just after welding finished.

The welded part of a workpiece, electrodes and arm are very hot.
Do not touch them; otherwise you may be burnt.



Ground the Equipment.

If the Equipment is not grounded, you may get an electric shock when there is trouble, or when electricity leaks.



Connect the specified cables securely.

Cables of insufficient current capacities and loose connections can cause fire and electric shock.



Do not damage the power cable and connecting cables.

Do not tread on, twist or tense any cable. The power cable and connecting cables may be broken, and that can cause electric shock and fire.
If any part needs to be repaired or replaced, consult us or your distributor.



Do not use any damaged power cable, connecting cable and plug.

That can cause electric shock, short circuits and fire.
If any part needs to be repaired or replaced, consult us or your distributor.



Stop the operation if any trouble occurs.

Continuous operation after occurrence of a trouble such as burning smell, abnormal sound, abnormal heat, smoke, etc. can cause electric shock and fire.

If such a trouble occurs, immediately consult us or your distributor.



Persons with pacemakers must stay clear of the welding machine.

A person who uses a pacemaker must not approach the welding machine or walk around the welding shop while the welding machine is in operation, without being permitted by his/her doctor. The welding machine generates a magnetic field and has effects on the operation of the pacemaker while it is turned on.



Protective gear must be worn.

Put on protective gear such as protective gloves, long-sleeve jacket, leather apron, etc. Surface flash and expulsion can burn the skin if they touch the skin.



Wear protective glasses.

If you look at the flash directly during welding, your eyes may be damaged.
If any Surface flash and expulsion gets in your eye, you may lose your eyesight.



CAUTION



Apply the specified source voltage.

Application of a voltage out of the specified range can cause fire and electric shock.



Do not splash water on the Equipment.

Water splashed over the electric parts, can cause electric shock and short circuits.



Use proper tools (wire strippers, pressure wire connectors, etc.) for termination of the connecting cables.

Do not cut the conductor of wire. A flaw on it can cause fire and electric shock.



Install the Equipment on firm and level surface.

If the equipment falls over or drops from an uneven surface, injury may result.



Do not sit on or do not put things on it.

Sitting on it, or putting things on it may cause malfunction.



Keep combustible matter away from the welding machine.

Surface flash and expulsion can ignite combustible matter. If it is impossible to remove all combustible matter, cover them with non-combustible material.



Do not cover this Equipment with a blanket, cloth, etc.

If such a cover is used, it may be overheated and burn.



Do not use this Equipment for purposes other than welding.

Use of this equipment in a manner other than specified can cause electric shock and fire.



Use ear protectors.

Loud noises can damage hearing.



Keep a fire extinguisher nearby.

Make sure there is a fire extinguisher in or near the welding shop in case of fire.



Regularly inspect and maintain the Equipment.

Regular inspect and maintenance is essential to safe operation of the equipment. If you see any damage, make necessary before starting the operation.

(2) Precautions for Handling

- Install the Equipment on a firm and level surface. If it is used inclined or on its side, it may have a malfunction.
- Do not install this Equipment in the following places:
 - Where there is considerably damp (humidity is higher than 90%).
 - Where the ambient temperature is above 40°C or below 5°C.
 - Where there is nearby high noise source.
 - Where the Equipment may be exposed to chemicals.
 - Where moisture may be condensed on the surface of the Equipment.
 - Where there is considerable dirt.
 - Where the Equipment may be subjected to vibration or impact.
- If the outside of the Equipment is stained, wipe it with a dry cloth or a moistened cloth. If it is badly stained, use diluted neutral detergent or alcohol to clean it. Do not use paint thinner, benzene, etc., which can discolor or deform the parts.
- Do not put screws, coins, etc., in the Equipment, as they may cause a malfunction.
- Operate the Equipment according to the method described in this operation manual.

(3) On Disposal

This product incorporates parts containing gallium arsenide (GaAs). At the time of disposal, separate it from general industrial waste or domestic waste and carry out the disposal in accordance with applicable laws and regulations.

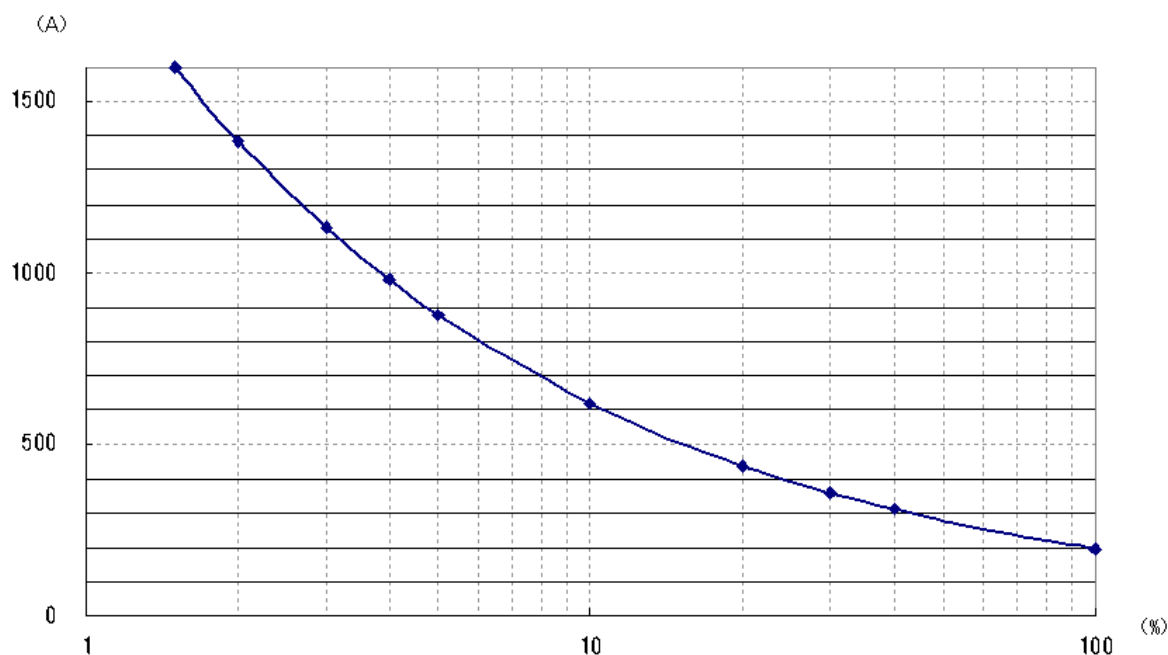
2. Features

The **MT-510AC** is the AC spot welding transformer suitable for welding small precision components such as thin metal sheets.

3. Specifications

Rated Primary Voltage	200 V AC +/-10% 50/60 Hz
Rated Secondary Voltage	OFF, 1.2 V, 1.8 V, 2.5 V, 3.5 V (without Load)
Turn Ratio	167:1, 111:1, 80:1, 57:1
Max. Secondary Current	1600 A
Allowable Duty Factor	1.5% or less
Standard Max. Input Capacity	5.6 kVA
Rated Capacity	1.0 kVA (Contracted Power Capacity)
Insulation Voltage	3 kV AC for 1 minute
Insulation Resistance	1000 V DC megger 50 M ohms or more
Operation Environment	Temperature 5°–40°C, Humidity 90% or less (Dew condensation not allowed), Altitude 1000 meters or lower Caution: Use this product in the environment without conductive dust. If conductive dust enters in the product, this may result in a failure, electric shock, or fire. When using this product in this environment, make contact with us.
Storage Environment	Temperature -10°–55°C and dew condensation not allowed
Heat-Resistant Class	F
Case Protection	IP20
Outline Dimensions	175 mm (H) × 193 mm (W) × 284 mm (D) (Not including projections)
Mass	20 kg

■ Duty Cycle Graph



4. Description of Operation

Connect the output cord from the welding control to the terminal board in the rear panel. In 50Hz area, Connect to "COM" and "50Hz" and in 60Hz area, connect to "COM" and "60Hz". At this time, be sure to put OFF the power source of the welding control. Connections must be made firmly.

For connecting the transformer to the head by a secondary cable, use the braiding cable or copper plate which has 30 square mm or more, and connect it as short as possible. If any dirt such as oil or metal scrap is stuck on the contact surfaces of connecting terminals, or if there is a slack in the connection of the secondary cable, it causes to lower the welding current or generate extra heat.

The output voltage can be switched to four steps (1.2 V, 1.8 V, 2.5 V, 3.5 V) by changing "POWER" switch. According to the characteristic of the heads and type of a work to be welded, switch the voltage for use.

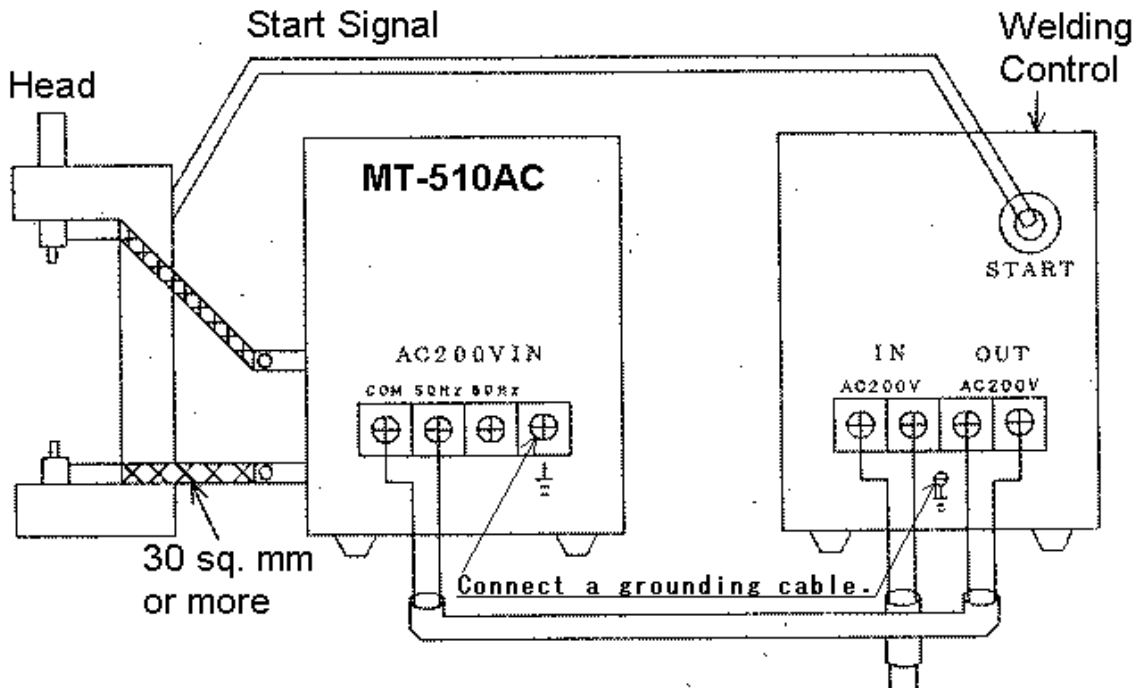
Be careful to obtain the sufficient effect of heat release when the transformer is assembled in the automatic welder and the like.

Since it leads to the excessive heat or breakage to use the transformer in the closed condition or beyond the duty factor, it is very dangerous, so never use it in those conditions.

$$\text{Duty Factor} = \frac{\text{Current Running Time}}{\text{Running Interval}} \times 100 (\%)$$

Also, if the capacity of the control is rather small, the control may break, so be sure to use the proper welding control which fits to **MT-510AC**.

5. Wiring



6. Other Information

- (1) Be careful to handle with the transformer because 200 V AC is applied on the primary side.
- (2) Do not put any voltage to the secondary, or it may break the control.
- (3) Do not change "POWER" switch during supplying current.
- (4) Be sure to connect a grounding cable.

7. Outline Drawing

(Dimensions in mm)

