Power ARC 405

GeKaMac®

Power ARC 405
Manual Instructions

Please Read and Understand This Manual
Before Operating Welding Machine

www.gedikwelding.com

This machine is for internal use only.

It complies with the WEEE Directive.

This machine has been designed in accordance with the EN 60974-1 and EN 60974-10 standards.

The machine is safe when installation, operation, and maintenance are performed in accordance with the user manual and regulations. The operator and machine owner are responsible for adhering to safety rules.

Gedik Kaynak San. Ve Tic. A.Ş. assumes no responsibility for safety or CE compliance if any modifications are made to the machine or if safety rules are not followed.

This Class A equipment is not suitable for use in homes and similar residential areas where the power supply is provided by the low-voltage public electricity network.

This machine is not household waste and cannot be disposed of in the trash.

When the machine reaches the end of its service life or becomes obsolete, it must be disposed of in accordance with regulations.

COMPLIES WITH THE WEEE DIRECTIVE.

Eco Design Statement

This machine has been designed and manufactured in accordance with the requirements of the 2009/125/EC Eco Design Directive concerning the environmentally friendly design of energy-related products.

Accordingly, machines with an idle mode are as follows.

	Idle Mode
MMA	**X**
MIG	√
TIG	√
Plazma	√
SAW	**Out of Scope**

Efficiency measurements should be conducted only on the power unit. The water cooling system should be disabled. For more information on measurements and machine settings, Gedik Kaynak Sanayi ve Ticaret A.Ş. should be consulted.

Attention!

Our Valued Customer,

We kindly request that you obey the warnings mentioned below:

- Definitely have the “Warranty Document” approved when you get the machine.
- Use the machine in a way that is in accordance with the fundamentals that are mentioned in the user’s guide of the machine.
- Refer to the nearest GEDIK WELDING authorized service or the service center of GEDIK WELDING when a problem comes up.

Attention!

Field Evaluation

Before the user installs arc welding equipment, it is necessary to evaluate the working area in terms of the risk of electromagnetic problems. Therefore the following items should be considered.

- Other supply, control, signal and telephone cables above or under the machine and near the welding machine;
- Radio and television transmitters and receivers;
- Computer and other control devices;
- Critical devices, such as the protection of industrial devices, in terms of safety;
- Pacemakers, hearing aids, etc. the health of people that use devices in the vicinity;
- Calibration or measurement devices;
- The associated of all other devices in the area (The user should be careful that other nearby equipment can work together with the arc welding equipment. For this reason additional protection devices may be required);
- The time of day when the welding or other activity was applied.

The area that may be affected, may vary depending on the structure plan of the used machine and the area covered by the other applications and may extend beyond the machine's used construction.

Evaluation of Welding Configuration

In addition to field evaluating, evaluation of the arc weld installation can be used to measure and remove interference conditions. The interference evaluation should include in situ measurements as described at CISPR 11:2009 in paragraph 10. In situ measurements can also be used to verify the efficiency of attenuation measurements.

Thank you for prefering one of GeKaMac® products.

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AT UYGUNLUK BEYANI

EU DECLARATION OF CONFORMITY

Bu uygunluk beyanı yalnızca imalatçının sorumluluğu altında düzenlenir.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

İstanbul, Turkey, 08.03.2024

İmalatçı / Manufacturer

GEDİK KAYNAK SANAYİ ve TİCARET A.Ş.

Ankara Cad. No.306 Seyhli Pendik ISTANBUL TURKIYE

Ürün / Product	ARC WELDING MACHINE
Marka-Model / Brand- Model	PoWer ARC 405

Yukarıda tanımlanan beyanın nesnesi ilgili uyumlaştırılmış AB mevzuatı ile uyumludur.

The object of the declaration described above, is in conformity with the relevant union harmonisation legislation.

Direktifler / Directives	2014/30/EU & 2014/35/EU & 2009/125/EC

Uyumlaştırılmış standartlar ve uygunluğun deklare edilmesiyle ilişkili diğer referanslar.

References to the relevant harmonised standarts used and references to the other technical specifications in relation to which conformity is declared.

EN IEC 60974-1:2022+A11:2022
EN IEC 60974-10:2021

Bu ekipman, talimatlara uygun kurulduğunda, bakımı yapıldığında ve kullanıldığında belirtilen standartlara uygundur. Makine üzerinde bir değişiklik yapıldığında veya yanlış kullanımda deklarasyon geçersiz olur.

The equipment is in compliance with pertinent legislation when installed, utilized, and maintained in accordance with the enclosed instructions. This declaration will be invalid under any modification or improper use.

İmalatçı Adına imzalayan / Signed for and on behalf of:

Hatice Özel, Equipment Business Unit Director

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2. ENVIRONMENT&SAFETY RULES

Protect yourself and others against possible serious injury or death risks. Keep children away. People who have pacemakers in their bodies should consult their doctors before operating the welding machine. Be careful when you are doing operations with your hands on the pieces. Use proper equipment that are necessarry to protect yourself from burns that can be caused by excessive heating of the piece during welding and / or cutting operation. Be sure that all set up, maintenance and repair related operations are performed only by qualified people.

2.1. ELECTRICAL SHOCK

Electrode and the piece that is being worked on or ground circuits are active in terms of electricity while the welding machine is on. Don't touch these active parts with bare hands or wet clothing. Wear dry gloves that have no holes to insulate your hands.

2.2. ARC RAYS

Use a protective mask with a proper filter to protect your eyes from the sparks and the rays of the arc while welding or watching such an actitivity. The head mask and the filtered glasses must meet the ANSI Z87.I standards

2.3. GASES AND FUMES

Fumes and gases that are harmful to health can form during the welding operation. Do not inhale these gases or fumes. Keep your head out of the fumes while welding. Provide sufficient ventilation in the arc and / or use fume suction machines to keep fumes and gases out of the breathing area

2.4. WELDING SPARKS

Put away elements that are fire hazards from the welding area. If this is not possible, cover these hazards to prevent welding sparks from starting a fire. Do not forget that welding sparks and hot materials coming from welding can go on to neighboring areas easily through small cracks and openings. Don't do welding near hydrolic lines. Always keep a fire extinguisher on hand.

2.5. ELECTRICITY AND MAGNETISM

Electric flow that passes through a conductor causes Electric and Magnetic Fields (EMF) to be formed. Welding current creates EMF around welding cables and welding machines.

— EMF can ruin the operation of some pacemakers. For this reason, welders who have pacamakers in their bodies should consult their doctors before welding.

— Being exposed to EMF during welding, can cause other unknown health problems.

— Getting exposed to EMF will be minimized by paying attention to the following instructions:

- Guide electrode and chassis cables together.
- Never wrap electrode and chassis cables around your body.
- Do not place your body between the electrode and chassis cables.
- Connect the chassis cable as close to the piece that is being worked on as possible.
- Stay as far away as you can from the power units.

2.6. ACCIDENTS ORIGINATED FROM THE MOVING PARTS

- Stay away from moving objects.
- Be careful while working next to moving parts.
- Choose metal-nosed shoes against the falling.
- Keep the machine covers closed.

2.7. ENVIRONMENT

Suitable for AEEE regulation.

3. ELECTROMAGNETIC COMPATIBILITY (EMC)

This machine has been designed in accordance with all related regulations and norms. Additionally, it can still generate electromagnetic forces that affect other systems such as communications (telephone, radio, television). These affects can cause security problems in the exposed systems. Read carefully and understand this section in order to reduce or get rid of the affects that can be created by this machine.

This machine has been designed to be operated in the industry area. If it is operated in private places (house etc.), it will become necessary to take special precautionary measures in order to prevent possible electromagnetic affects. It is necessary for the user to set up and operate these machines just like the way it is described in the handbook. If an electromagnetic affect is perceived due to the operation of these machines, the user should take corrective measures in order to get rid of these affects. If necessary, the user should contact GEDIK WELDING IND. COM. LTD. CO. No changes should be made in the machine without getting written approval from GEDIK WELDING IND. COM. LTD. CO.

The control of the work area should be made in terms of tools that can work improperly due to the electromagnetic affects before the machine is assembled.

- Inlet and outlet cables, telephone cables and control cables that are found in the work area of the machine.
- Radio and/or television transmitters and receivers,
- Computer or computer controlled tools,
- Safety and control equipment for industrial operations,
- Calibration and measurement appliances,
- Medical appliances such as heart rhtyme appliance and hearing aids,

Control the electromagnetic immunity of the equipments that operate near the work area. The user should be certain that all the equipments that are in the work place are compatible. Otherwise, it can necessitate additional protective measures.

Ideal dimensions of the work place are determined by the construction of the area and other factors that are found there. Take the warnings below into consideration in order to decrease the affects of the electromagnetic waves that the machine generates:

* Make the connection of the machine with the network electricity in the way it is stated in the user's guide. If an electromagnetic interaction comes into being, such preventive measures as filtring the main electrical inlet may need to be taken.

* Outlet cables should be as short as possible and should be kept together.

4. GENERAL INFORMATIONS AND WARNINGS

Do not set up, operate or repair before reading the user's guide and the security measures that are found in it. Hide this user's guide and always have it on hand.

- Cut off the electrical connection between the welding machine and the network when the work is finished or when you are going to take a long break.
- Do not make any changes in the welding machine. This operation can cause the machine to lose its properties and a change in technical data.
- It is forbidden to do adaptation on the welding machine. Doing adaptation does not only cause the loss of warranty rights, but also can jeopardize the operational safety of the machine and can create the risk of electrocution for the users.
- A damage in the welding machine due to a mistake of the user will cause the loss of warranty rights.
- Acceptable environmental temperature range during work is between -10 °C and +40 °C.
- Manufacturing company reserves the right to change the technical properties without prior notice.

5. ADVANTAGES AND GENERAL PROPERTIES OF POWER ARC 305 - 405

Power ARC 305&Power ARC 405 are MMA arc welder which adopts the latest pulse width modulation (PWM) technology and the insulated gate bipolar transistor (IGBT) power module. It can change work frequency to medium frequency so as to replace the traditional hulking work frequency transformer with the cabinet medium frequency transformer. Thus, it is characterized with portable, small size, light weight, low consumption and etc.

Power ARC 305 – 405 have excellent performance;

- Constant current output makes welding arc more stable,
- Fast, dynamic response speed reduces the impact from the arc length fluctuation to the current,
- Welding current, Hot start and Arc Force characteristics are adjustable,
- Open circuit voltage is reduced to safe level with VRD function,
- There are also some automatic protection functions for under voltage, over current, over heat etc.
- Provides TIG welding option with LIFT TIG function,
- These machines are widely used in petroleum, chemical, mechanical, shipbuilding, architecture, boiler, war industry and so on.

MMA: Manual Metal Arc welding
PWM: Pulse Width Modulation
IGBT: Insulated Gate Bipolar Transistor
VRD: Voltage Reduction Device

6. TECHNICAL INFORMATIONS

Models	PowerARC 305		PowerARC 405	
Supply Voltage (V)	1~220±15% 3~380±15%		1~220±15% 3~380±15%	
Frequency (Hz)	50/60		50/60	
Input Power (kVA)	12,9		18,1	
Duty Cycle (40°C 10 dk)	**1~220** 100% 180A	**3~380** 50% 300A 80% 260A 100% 250A	**1~220** 100% 150A	**3~380** 50% 300A 80% 260A 100% 250A
Open Circuit Voltage (V)	65		100	
Welding Current Range (A)	15-300		15-400	
Efficiency (%)	≥70%		≥70%	
Power Factor	0.8		0.8	
Weight (Kg)	13,5		16	
Protection Class	IP23		IP23	
Isolation Class	H		H	
Dimensions (mm)	200x450x340		200x560x340	

7. MAINTENANCE

In order to guarantee that arc welding machine works high-efficiently and in safety, it must be maintained regularly. Let customers understand the maintenance methods and means of arc welding machine more , enable customers to carry on simple examination and safe guarding by oneself, try one's best to reduce the fault rate and repair times of arc welding machine, so as to lengthen service life of arc welding machine.

(1) After turn-on power, watch/listen to that whether the arc welding machine has shaking, whistle calling or peculiar smell. If there is one of the above problems, find out to reason to get rid of ; if you can't find out the reason.

(2) Observe that whether the current output cable is damaged. It should be wrapped up , insulated or changed.

(3) Using the dry air compressed air to clear the inside of welding machine. Especially for clearing up the dusts on radiator, main voltage transformer, inductance, IGBT module, the fast recover diode and PCB etc.

(4) Whether the actual current accords with the displaying value. If they does not accord, they should be regulated. The actual current value can be measured by the adjusted plier-type ampere meter.

8. LAYOUT FOR FRONT&REAR PANEL

1. **Fault Light**
2. **Welding Type Selection Button**
3. **Digital Display**
4. **Welding Current Adjustment Button** (adjusts welding current, Hot Start, Arc Force)
5. **Positive Connection**
6. **Negative Connection**
7. **On/Off Switch**
8. **Fan**
9. **Cable Connection**

9. TROUBLESHOOTING

Troubles	Solutions
Indicator does not light-up, fan does not turn, no welding output.	1. Make sure the power switch is turned on. 2. Corfirm that the power input cable are connected.
Fan does not work	1. Clear the fan 2. Change the fan
Indicator&fan are normal, no output current	1. Connect welding cable to the machine. 2. Change welding cable. 3. Check welding cable.
Changeble welding current	1. Reduce the ARC Force
High starting current	1. Reduce the Hot Start

Error Code	Description
E1	IGBT Termic
E9	Fast heat increment
E14	High Supply Voltage
E70	IGBT Fault

10. PROPERTY DEFINITIONS

Hot Start

Hot Start is a situation that the current increases momentarily for starting. This current allows easy ignition of arc. Also provides non-stick characteristic. Hot start works simply like that;

Hot Start Current= (Adjusted Current+(Adjusted Current x Hot Start Rate))

For example: Current sets 100 A and hot start rate sets %50, so;

Hot Start Current: (100+(100 x (50/100))) =150 A

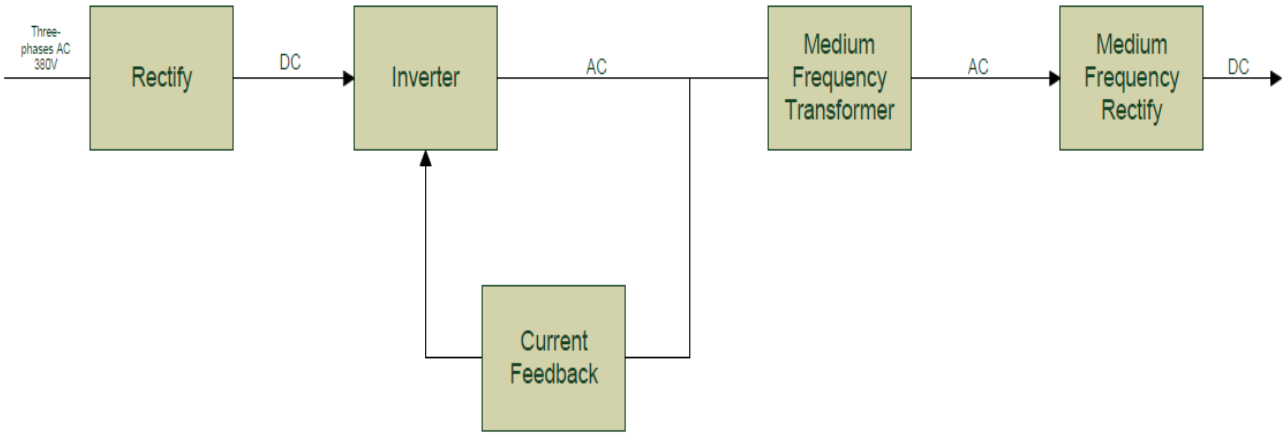
Anti Sticking

An electrode may stick when it contacts with welding surface. Anti-Sticking prevents this problem by reducing current when the voltage decrease under 9,3 V.

Arc Force

Arc Force is a characteristic that prevents welding distortions and electrode sticking. If the arc force is active, the machine increases the current when the voltage drops.

11. WORKING PRINCIPLE OF POWER ARC 305-405



12. WARRANTY CONDITIONS

1. The length of the warranty starts on the date of delivery and it is for 1 year.

2. The whole merchandise including all its parts are covered by the warranty of our company.

3. If the merchandise breaks down within the length of the warranty, the time spent in the repair shop will be added to the length of the warranty. The length of repair of the merchandise is at the maximum 20 working days. This period of time starts on the date that the merchandise was delivered at one of the following locations: A service station or the seller of the merchandise or dealer or agency or representation office or importer or manufacturer, in this order if there are no service stations.

4. If the merchandise breaks down either due to material and workmanship or assembly lines within the length of the Warranty, it will be repaired without demanding any money under the name of expenditure of workmanship, the cost of the changed piece or under any other name.

5. Replacement operation will be done without charge in cases where the merchandise repeats the same fault more than twice or different faults come up more than four times within the length of the warranty, the length of the repair exceeds maximum necessary time and the determination of the unrepairability of the merchandise by a report that is prepared either by a service station or the seller or a dealer or an agency or a representation office or the importer or the manufacturer, in this order, if there are no service stations.

6. Faults that are results of misuse according to the user's guide of the merchandise are not covered by the warranty.

7. Ministry of Science Industry and Technology, The Protection of the Consumer and Competition General Directorate can be refered to whenever a problem concerning the warranty document comes up.

8. Earth clamp and electrode holder kits are not under warranty.

GeKaMac®

Gedik Welding Machines

Warranty Document

MACHINE INFORMATION

Brand : GeKaMac®

Model : …….....

Serial Number : …….....

CUSTOMER INFORMATION

Company Name : …….....

Authorized Person : …….....

Telephone : …….....

Company Address : …….....

City/Country……..... …….....

E-Mail :…… @…….....

Signature /Cachet :

SERVICE INFORMATION

Authorized Service : …….....

Service Staff : …….....

Installation Date : ……/……/…….....

Warranty Starting Date : …….....

Warranty Expiration Date : …….....

Signature /Cachet :

GeKaMac®

Gedik Welding Machines

Warranty Document

MACHINE INFORMATION

Brand : GeKaMac®

Model : …….....

Serial Number : …….....

CUSTOMER INFORMATION

Company Name : …….....

Authorized Person : …….....

Telephone : …….....

Company Address : …….....

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GeKaMac®

Power ARC 305-405

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