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Made in China/Fabriqué en Chine
Lotus Tool Group (Philippines)
www.lotustools.ph

GENERAL SAFETY RULES

WARNING!
Read all instructions
Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury. The term "power tool" in all of the warnings listed below refers to your mains operated (corded) power tool or battery operated (cordless) power tool.

SAVE THESE INSTRUCTIONS

1) Work area
a) Keep work area clean and well lit.
Cluttered and dark areas invite accidents.
b) Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.
Power tools create sparks which may ignite the dust of fumes.
c) Keep children and bystanders away while operating a power tool.
Distractions can cause you to lose control.

2) Electrical safety
a) Power tool plugs must match the outlet. Never modify the plug in any way.
Do not use any adapter plugs with earthed (grounded) power tools.
Unmodified plugs and matching outlets will reduce risk of electric shock.
b) Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.
There is an increased risk of electric shock if your body is earthed or grounded.
c) Do not expose power tools to rain or wet conditions.
Water entering a power tool will increase the risk of electric shock.
d) Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.
Damaged or entangled cords increase the risk of electric shock.
e) When operating a power tool outdoors, use an extension cord suitable for outdoor use.
Use *of a cord suitable for outdoor use reduces the risk of electric shock*

3) Personal safety
a) Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.
A moment of inattention while operating power tools may result in serious personal injury.
b) Use safety equipment. Always wear eye protection.
Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
c) Avoid accidental starting. Ensure the switch is in the off position before plugging in.
Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.
d) Remove any adjusting key or wrench before turning the power tool on.
A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
e) Do not overreach. Keep proper footing and balance at all times.
This enables better control of the power tool in unexpected situations.
f) Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.
Loose clothes, jewellery or long hair can be caught in moving parts.
g) If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.*Use of these devices can reduce dust related hazards.*

4) Power tool use and care
a) Do not force the power tool. Use the correct power tool for your application.
The correct power tool will do the job better and safer at the rate for which it was designed.
b) Do not use the power tool if the switch does not turn it on and off.
Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
c) Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.
Such preventive safety measures reduce the risk of starting the power tool accidentally.
d) Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.
Power tools are dangerous in the hands of untrained users.
e) Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation.
If damaged, have the power tool repaired before use.
Many accidents are caused by poorly maintained power tools.
f) Keep cutting tools sharp and clean.
Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
g) Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.
Use of the power tool for operations different from intended could result in a hazardous situation.

5) Service
a) Have your power tool serviced by a qualified repair person using only identical replacement parts.
This will ensure that the safety of the power tool is maintained.

PRECAUTION

Keep children and infirm persons away.
When not in use, tools should be stored out of reach of children and infirm persons.

SAFETY WARNING

Warning：Please read the follow safety warning before operation.

All to defend and other –-- Ear cap shall be put on when welding, and very operation is also important during welding. So:

1. The welding helmet, face shield and protective goggles shall be prepared, when in the working area at any time.
2. The appropriate face shied with filter and skin face shall be used to protect eyes, face, neck, and ears form electrical spark and arc ray. And the spectator should not watch the arc and keep rain sack away from the arc ray and splash.
3. The appropriate protective clothing, shoes and helmet shall be worn to protect from arc ray, sparing and splattering.
4. All the buttons shall be done up to avoid the sparking and splattering.
5. The nonflammable partition and door curtain shall be used protect the other workers from electric ray and sparking.
6. The protective goggles shall be used when cleaning welding spatter.

Fire and Burst –The heat of frame and arc can cause fire. So:

1. Keep the flammable materials including wooden, cloth, wet fuel and gas fuel and so on away from the welding working area.
2. All the walls and floor in the working area should be untracked to avoid the smoldering and fire.
3. Ensure that all the working pieces are cleared before doing welding, and do not do weld on the sealed container to avoid burst.
4. The fire-fighting equipment shall be prepared near the welding working area.
5. Do not use the equipment overloading.
6. The fire monitor shall be used after welding.

Electric shock----Please do not use the welding source in the wet area to avoid any injure or death. So:

1. To ensure the source under pan and ear thing system of input source are connected.
2. To ensure the working pieces and good electric are connected.
3. To ensure the working cable and working piece are connected.
4. To change the damaged or abrasion cable in time.
5. Keep dry, including cloth, working area, wire, welding torch, soldering turret and power supply.
6. Keep the body insulated from the work piece and ground.
7. The operator shall stand on a dry wooden board or insulating platform of rubble shoes when working in a sealed on moist area.
8. The dry and sealed glove shall be worn before turning on the power.
9. The power should be turned off before taking off the glove.

Electromagnetic field---- It can bring dangerous. So:

1. The worker that the heart pacemaker imbedded shall do some consultation with the doctor before doing welding; because the electromagnetic field may disturb the normal work of have pacemaker.
2. The electromagnetic is unhealthful.
3. The worker shall take the following measures to down times. exposing himself to the electromagnetic field:
   (1) Put the electrode cause and work cable together, and also the tape can used if possible.
   (2) Do not wind the welding touch cable and work cable round yourself.
   (3) Put the welding torch cable and work cable on one side of yourself.
   (4) Connect the work cable to the work piece, and make it to the welding area as nearly as possible.
   (5) Make yourself away from welding source and cable as much as possible.

Fog and gas----The welding fog and gas can make the worker uncomfortable, or hunted, especially in the limited icescape, so do not breathe the fog and gas. So:

1. The aerator natural on mechanical shall be prepared in the working area. Do not do welding on the following metals (galvanized, seed, stainless steel, copper, zinc, read, beryllium or calcium), and also do not breathe the welding fog and gas in.
2. Does not welding near the degreasing or spraying operation to avoid the poisonous gas phosgene or other imitates gas.
3. If you feel little imitate to the eyes, nose or threat. You shall stop welding and perfect the aerator. And you should stop welding at once if feeling comfortlessness.

Equipment maintenance----The wrong or inappropriate equipment maintenance can cause injury or death. So:

1. The licensed people can do assembly, maintenance and some other operation.
2. The power source shall be turned off when any maintenance work in the power source needed.
3. Ensure that the cable, earth wire, connector, main lead and power supply are in the normal work.
4. Do not abuse equipment and firing.
5. Keep the safe equipment and cabinet dos shall in peace and good condition.
6. Do not change any equipment.

Danger! Means sudden danger. It can get people injured or dead if it is inevitable.

Warning! Means potential danger, it also get people injured or dead.

Caution! Means danger, it can get people injured.

PRODUCT DESCRIPTION

1.1 Product application

Advanced Inverter IGBT Technology

High inverter frequency and Single PCB reduces the size and weight of the machine markedly.
Decrease the loss of copper and steel; improve the efficiency of the welder apparently,
with high effect of saving energy.
The Switch Frequency designed outside of Audio Frequency nearly avoids noise pollution

One-up Control Way

Advanced Control project perfects the performance of the welder greatly, meeting the welding craft requirements to a great extent.
Widely used in the welding of all kinds of cellulose welding electrode.
With the advantages of Easy Arc-starting, Less Splash, Stable Current and Good Forming

Perfect Function Design

The function of unjustifiable heat Arc-starting perfects the arc-starting performance of welder greatly.
Adaptive current way with Push Power upgrades the welding performance in case of longer welding cable, so could realize the long distance welding.

1.2 Specification

MODEL / ITEM	LT310DX
Input Voltage(V)	1PH 220-240
Frequency(Hz)	50/60
Rated Input Capacity(KVA)	3.8
Power Factor	Cosφ0.93
Max No-load Voltage(V)	60
Current Range(A)	20-300
Rated Duty Cycle(%)	60
Usable Electrode(mm)	1.6-3.2mm
Insulation Class	H
Protection Degree	IP21S

1.3 Voltage characteristic and current characteristic of welding power source

The curve (as diagram1-1) means “V-A” external static characteristic of welding power, gradient of cure named slope, normal means “drop off voltage per 100A”. The curve shows the output voltage we can get in any preset output current because the “V-A” slope id fixed.

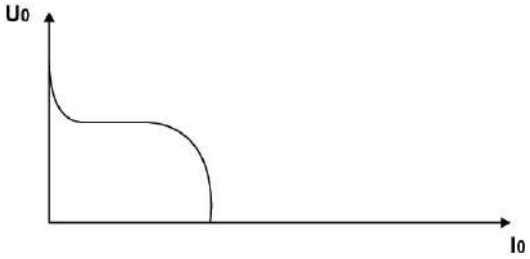


Diagram 1-1 External static characteristic

1.4 Equipment condition

a) Surrounding temperature range
   During welding: －10℃～＋40℃
   During transit and storage: －25℃～＋55℃
b) Opposite humidity
   when 40℃<50%
   when 20℃<90%
c) Dust acid active gas or object in surrounding air can’t exceed normal content, except these objects that be brought by welding course.
d) Altitude height must ≤1000m
e) Gradient of welding power ≤15°

1.5 Noise announce

When the machine is working, it maybe has noise, but the noise can’t exceed 75 decibel.

1.6 Safety

Before operating the equipment, you must read the safety directions to avoid the hurt that because of misapply and improper installing.

1.7 Accessories

1.7.1 Hammer/brush

The hammer brush will make the operation more confidently.

1.7.2 Mask (with welding screening black glass)

When welding, the mask will protect your eyes and face.

1.7.3 Electrode holder (with 1.6M welding cable)

1.7.4 Earth clamp (with 1.4M earth cable)

ASSEMBLY

2.1 The requirement of installing ground

Equal ground is very necessary to the machine, the ground must be have good ventilation system, and can't be exposed in dust, dirt, wet and active steam, the minimum distance between back board and it's nearest bar also above 46cm.

2.2 Checking

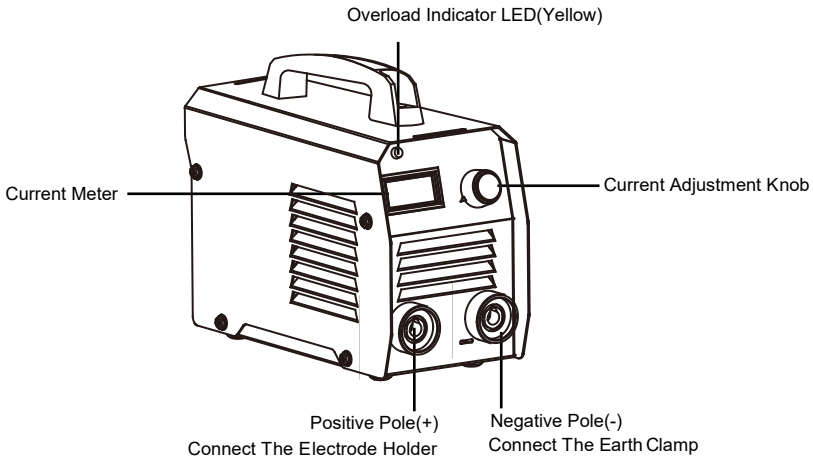
After receiving the equipment, you should check if the equipment has been damaged during traffic. If damaged, you should notify the conveyance, if lack spare parts, please notify the dealer at once.

Take the spare parts out from packing box, remove the packing material, and check if any parts are missing.

Check every airway in the shell, and make sure nothing will block air circulating.

Choose roomy ground to placed spare parts, in order to installing conveniently.

2.3 Know your panel



2.4 Rating information

The rating plate is fitted to the welder and displays the following symbols and information.

INVERTER WELDING MACHINE					CE
MODEL NO: LT310DX			EN 60974-1:2012		
1~ f_1/f_2					
	20A/20.8V ~ 300A/32V				
	X		30%	60%	100%
S	U_0=60V	I_2(A)	300	232	164
		U_2(V)	32	29.3	26.6
1~50/60Hz	U_1=220-240V	I_{1max}=70.3A		I_{1eff}=38.5A	
IP21S					

	MMA welding	U_0	Rated no-load voltage
1 ~ 50/60Hz	Supply circuit, single phase，alternating current and 50/ 60 Hz	U_1	Rated supply voltage
X	Duty cycle	U_2	Conventional welding voltage
I_{1max}	Rated maximum supply current	I_{1eff}	Maximum effective supply current
I_2	Conventional welding current	IP21S	Degree of protection
	Single phase frequency conversion and rectfier		

OPERATION

Cautions: When welding, you must wear helmet, glove and other guard.

Step1: Plug in the electrical source which is on the back panel of the machine.

Step2: Well connect the earth clamp to the quick connector and the work piece,

Step3: Put the welding rod into the welding tip and connect the electrode holder to another quick connector.

Step4: Adjust the “ON/OFF” switch to the “ON” position.

Step5: Preparations for welding are finished, when the weld is complete, lift the welding rod away from any grounded objects, turn the “ON/OFF” switch to the “OFF” position.

Cautions: If welding with large current for a long time and exceed the duty cycle, the overload lamp will light (yellow), the machine will stop working without output and you have to wait until the temperature cooling down.

MAINTENANCE

Cautions: If the equipment can’t work normally, you should stop working at once and check trouble reason. You must have this product repaired by service personnel. Forbid somebody that without training to check or repair equipment.

Warning: Before any maintenance, make sure it is switched off and disconnected from the mains supply.

Warning: If you replace the cable improperly, the bare cable may contact the grounding objects, the arc can hurt your eyes or bring bad fire. If body contact the bare cable, you may be burnt or dead.

Make sure that the earth clamp and electric holder is kept clean and in good working order. Keep the cooling vents clear and clean the outer casing with a soft cloth.
Store the equipment and accessories out of children’s reach in a warm and dry place. If possible store the welder in original packaging.

TROUBLESHOOTING

TROUBLE	REASON	SHOOTING
Without output	1. Without voltage in input terminal 2. Overload protective setting	1. After cooling then try to continue
When Pressing switch the machine can not working	1.Control wire broke off 2. Circuit plate damaged.	1. Check by service personnel 2. Replace circuit plate