IN ARC-200 DSI
INVERTER BASED
ARC WELDING MACHINES

Operating Manual

WARPP ENGINEERS PVT. LTD.

B-1005, Western Edge II, Near Metro Mall, Off. Western Express Highway, Borivali (E), Mumbai-400 066.
Tel: 91-22-28542272 / 73/74. Fax: 91-28542275.
Email:sales@warpp.co.in Web Site: www.warpp.co.in

Thank you for selecting a WARPP make inverter based welding machine. It is recommend that you to go through the manual prior to the use of the machine. Your safety is of utmost important to us follow the instruction carefully to avoid any accidents. Complying with the instruction given in the manual will help you enjoy the use of the product to the fullest benefits.

INDEX

Usage and features

INARC-200 DSI is Inverter Arc Welding Machines designed with the use of discrete IGBT. These machines can be used for SMAW welding in all kinds of basic and acid electrodes. It has been designed to deliver very stable output with good static and dynamic characteristics.

Some of the features of this model are listed below:

- Invert technology Assures higher efficiency, low volume and weight.
- Good Arc stability due to strong feedback
- Very Low spatter
- Easy arc Strike
- Higher Power Factor

Safety Precautions.

General safety precaution:

- Please strictly comply with rules defined in this manual to avoid unexpected accidents.
- While connecting to the power supply and selecting the working area please comply with proper rules.
- Please do not allow non-operator to enter working area.
- Installation, inspection, maintenance, of the welding machine must be completed by authorized person.
- Don’t use welding machine for unrelated purposes (Other than SMAW and GTAW)

Electric Shock can kill take proper precaution.

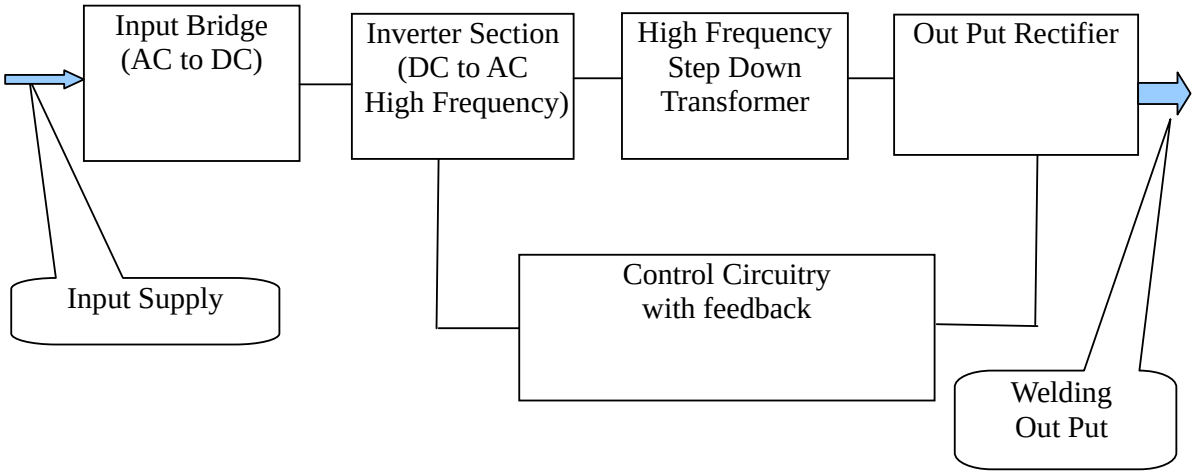
- Authorized electrician must use proper size insulated copper cable to connect the machine to the power supply.
- Proper grounding of equipment is necessary.
- While using the machine under space restraint, please ensure that the machine is insulated from the work piece.
- When operating in the high-rise location ensure operator safety.
- Please turn OFF the machine if not being used for long time.

Other Safety precautions

- Please use proper ventilation in work area
- Avoid breathing in hazardous welding fume or gas
- When using machine inside some chamber the oxygen level may come down fast while welding.
- Use proper protective wear to avoid accidents due to arc flash, hot spatter and slag
- Welding Arc has ultraviolet rays and it can cause damage to your eyes. Use welding shield with proper shade glass.
- Do not perform welding in areas where inflammables and explosives are stored, Arc splash; Spatter can lead to an accident.
- Earthing Cable must be connected the work piece firmly to ensure good conductivity
- Do not weld container which contains flammable material, otherwise it can explode.
- Ensuring that a fire extinguisher is around to tackle any fire break out

Working Principle

Block diagram



Principle in brief

This series welding machines employ discrete IGBT soft switch inverter technology. Single- phase input Supply is rectified by rectifier, inverted into AC at a higher frequency, Stepped down by HF transformer, rectified and filtered by HF rectifier to obtain DC power suitable for welding. As the control is done at high frequency, a dynamic characteristic of the machine is very good. Size of the machine is also reduced to a great due to high frequency which results in higher efficiency as well. The final output is a very good quality DC out put there by giving good welding characteristics.

Installation

(1) Welding machine Must be placed where there is no direct sunlight, rain and has less dust,
(2) The gradient of ground where the machine is kept should be no more than 15°
(3) Ensure that there is no wind at the welding position, or use screen to block the wind.
(4) The distance between welding machine and wall must be more than 20cm, between welders more than 10cm to ensure proper heat radiation.

Requirement of input Supply:

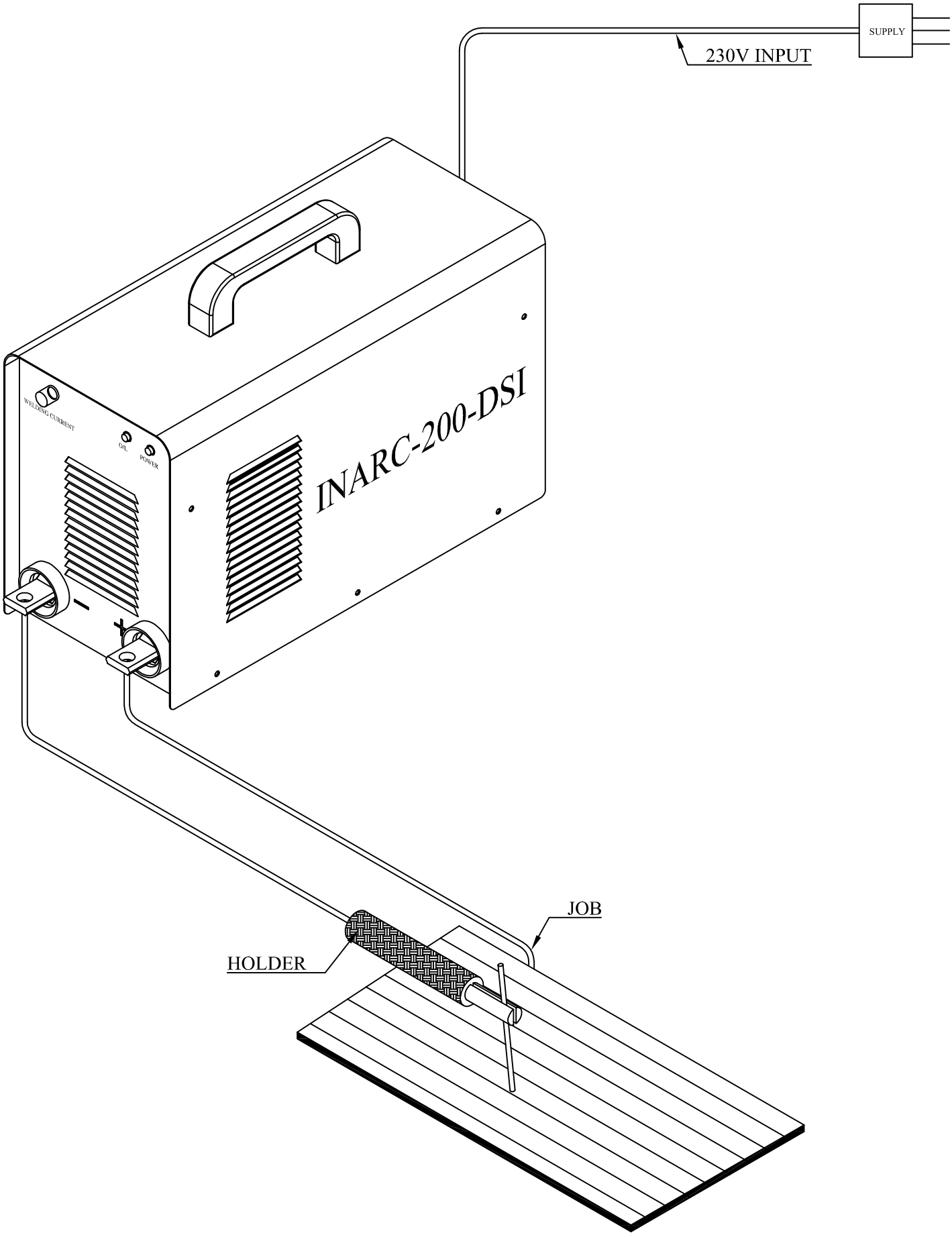
Input volt must be standard sine wave, Single phase 230 Volts 50 Hz

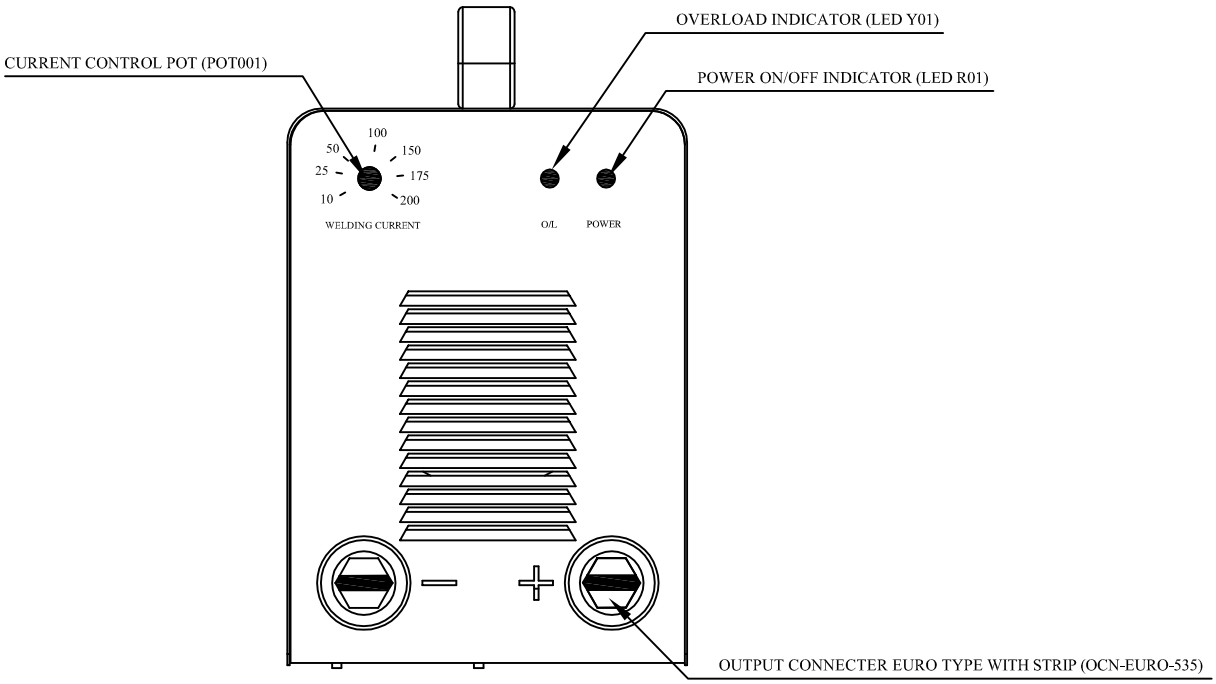
Use 32 amps MCB for the supply connection.

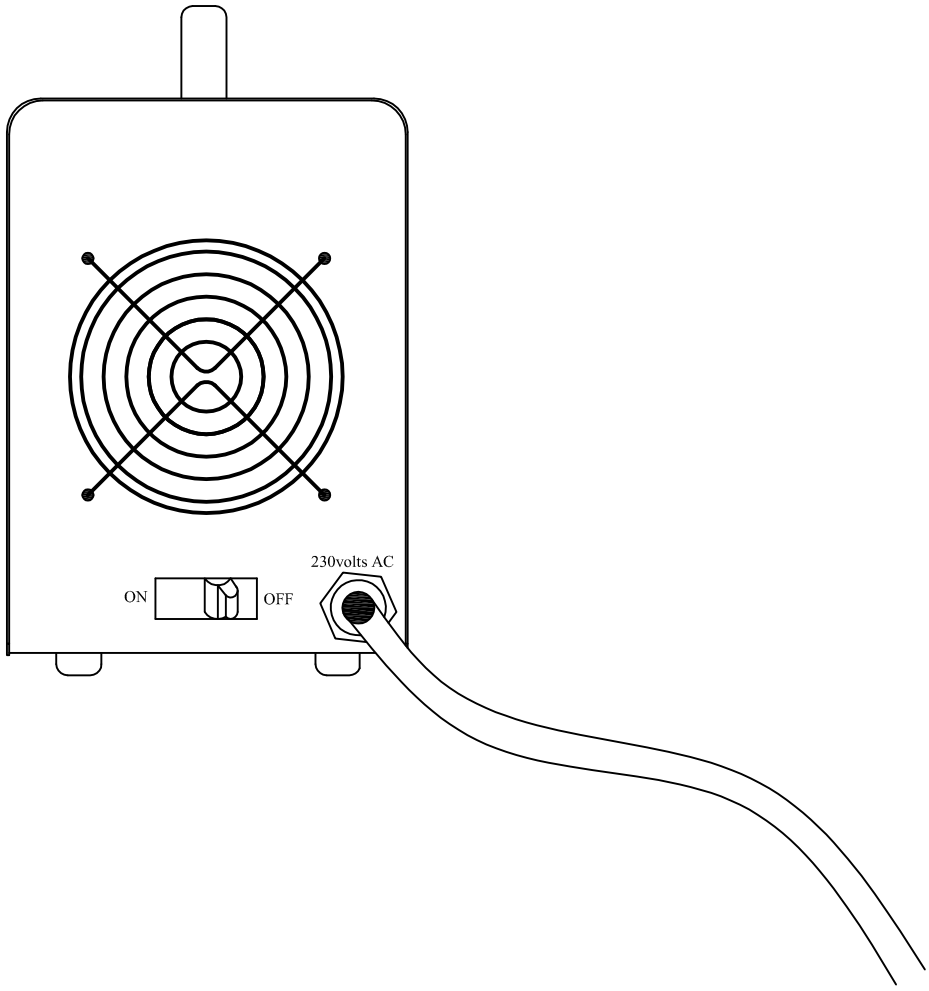
In case of extending input cable use 4 Sq mm cable, usage of cable less than 4 Sq mm will result in voltage drop and the machine may not function as desired.

Please refer to the installation diagram for proper installation of the machine.

Installation Diagram




CURRENT CONTROL POT (POT001)
OVERLOAD INDICATOR (LED Y01)
POWER ON/OFF INDICATOR (LED R01)
100
50
150
25
175
10
200
WELDING CURRENT
O/L
POWER
OUTPUT CONNECTER EURO TYPE WITH STRIP (OCN-EURO-535)


230volts AC
ON
OFF

Operating Instructions

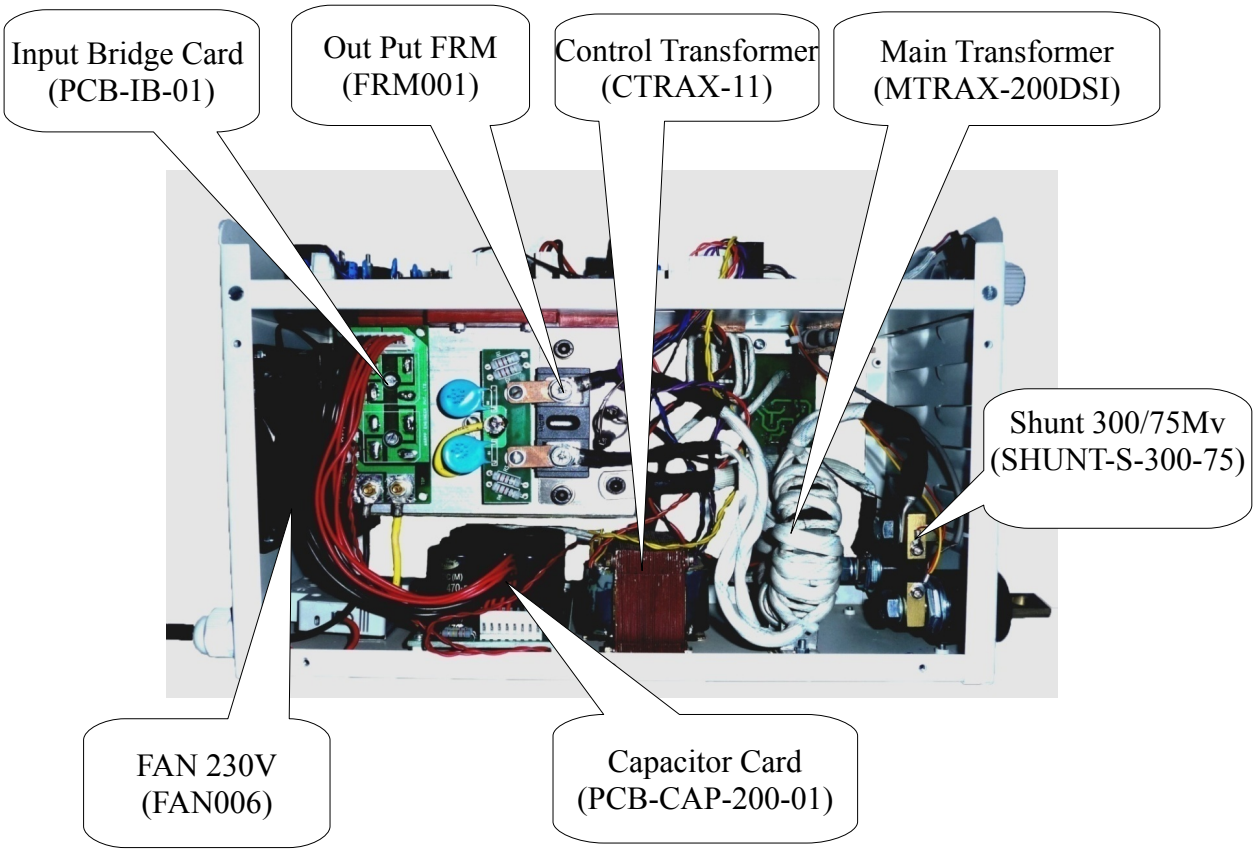
Complete the installation as per the installation procedure given, connect the welding holder to either positive or negative terminal of the the machine depending on the electrode used. Set the welding current using current setting potentiometer provided on the front panel and perform welding.

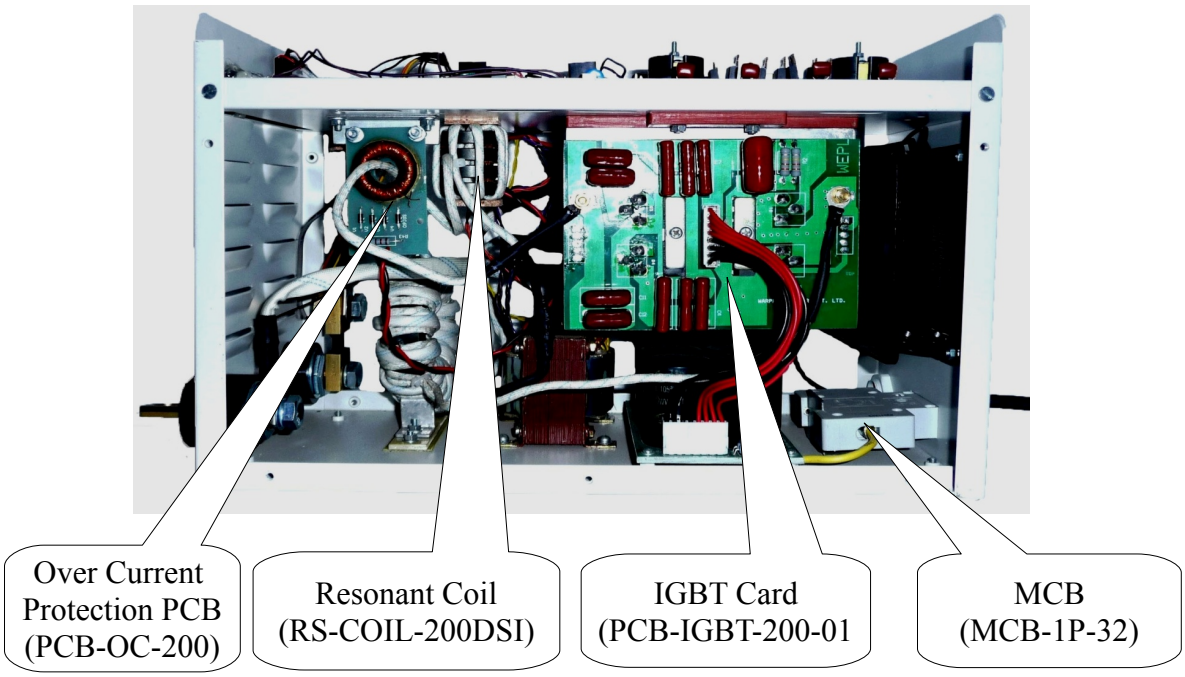
Do not use excess current than what is recommended for the electrode. Excess current can lead more to spatter

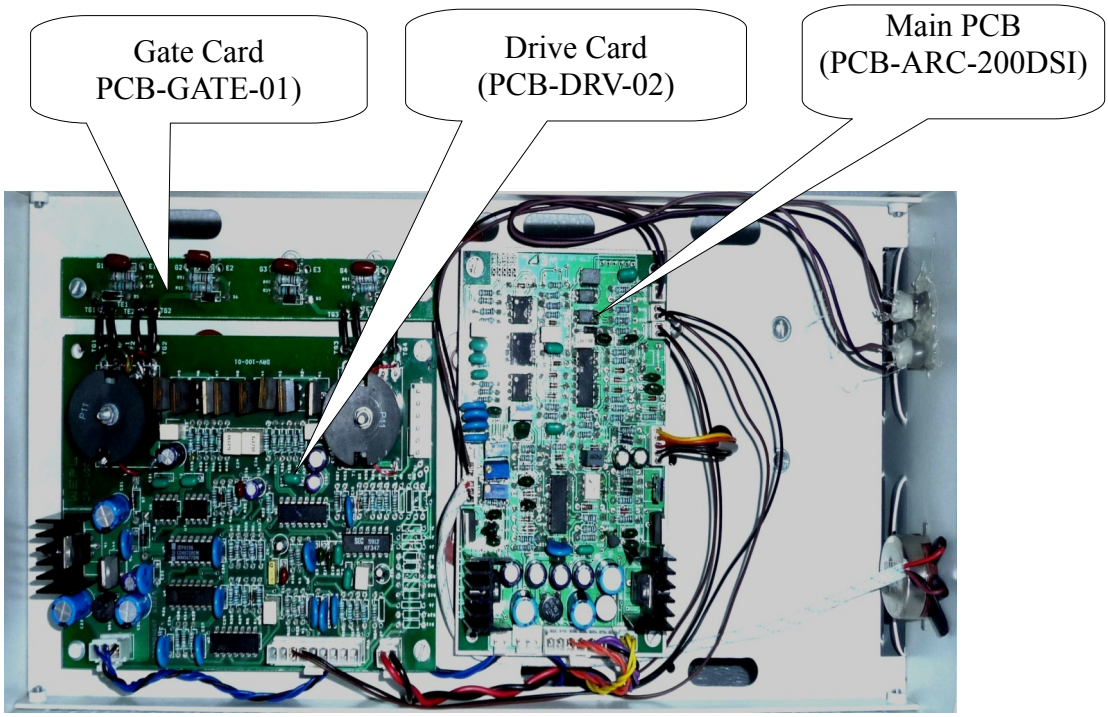
Technical Specifications

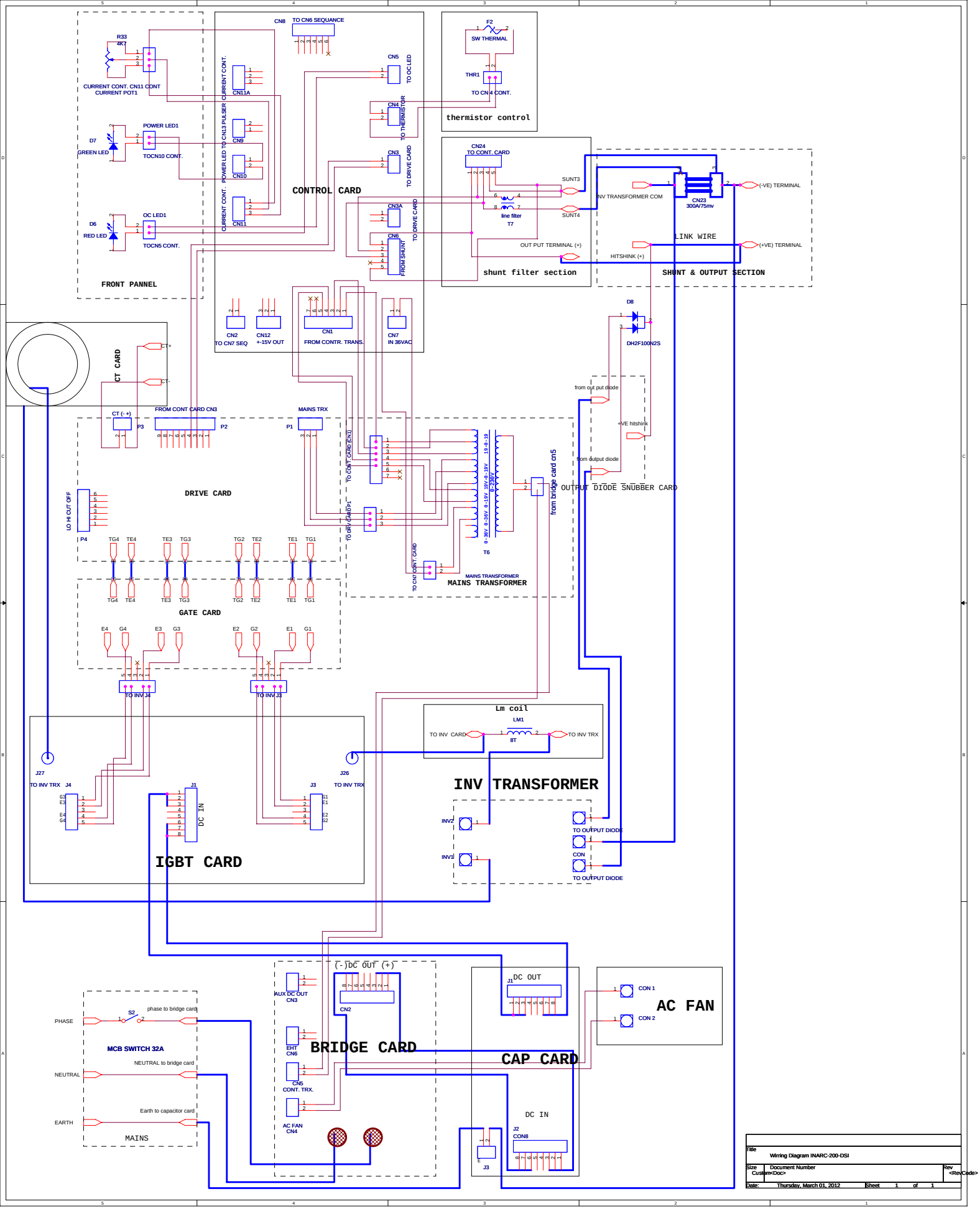
Machine Model	INARC-200DSI
Input Supply	Single Phase 230 Volts 50 / 60 Hz Supply
Input Power (KVA)	7
Welding Current Range (A)	20 ~ 200
Open Circuit Voltage (V)	75
Duty Cycle	60 % (40 ° C)
Power Factor	0.93
Full Load Efficiency(%)	89
Dimensions L X W X H (mm)	400 X 178 X 248
Weight (Kg)	12

Machine Structure






Gate Card
PCB-GATE-01)
Drive Card
(PCB-DRV-02)
Main PCB
(PCB-ARC-200DSI)


CONTROL CARD
FRONT PANNEL
thermistor control
shunt filter section
SHUNT & OUTPUT SECTION
LINK WIRE
CT CARD
DRIVE CARD
GATE CARD
MAINS TRANSFORMER
OUTPUT DIODE SNUBBER CARD
IGBT CARD
INV TRANSFORMER
Lm coil
BRIDGE CARD
CAP CARD
AC FAN
MCB SWITCH 32A
MAINS
DC IN
DC OUT
TO CN6 SEQUANCE
CURRENT CONT. CN11 CONT
CURRENT POT1
POWER LED1
OC LED1
TOCN10 CONT.
TOCN5 CONT.
TO OC LED
TO THERMISTOR
TO DRIVE CARD
FROM SHUNT
SW THERMAL
TO CN 4 CONT.
CN24
TO CONT. CARD
line filter
T7
INV TRANSFORMER COM
CN23
300A/75mv
(-VE) TERMINAL
(+VE) TERMINAL
OUT PUT TERMINAL (+)
HITSHINK (+)
CN2
TO CN7 SEQ
CN12
+-15V OUT
CN1
FROM CONTR. TRANS.
CN7
IN 36VAC
D8
DH2F100N2S
from out put diode
+VE hitshink
from output diode
from bridge card cn5
FROM CONT CARD CN3
MAINS TRX
TO CONT CARD (CN1)
TO DRV CARD P1
TO CN7 CONT. CARD
T6
LO HI CUT OFF
TO INV J4
TO INV J3
TO INV CARD
TO INV TRX
LM1
8T
J27
J26
J4
J1
J3
DC IN
TO OUTPUT DIODE
CON
INV2
INV1
phase to bridge card
NEUTRAL to bridge card
Earth to capacitor card
PHASE
NEUTRAL
EARTH
S2
AUX DC OUT CN3
EHT CN6
CN5 CONT. TRX.
AC FAN CN4
(-)DC OUT (+)
CON 1
CON 2
J2
CON8
Wiring Diagram INARC-200-DSI
Thursday, March 01, 2012

Spare Part List of INARC 200 DSI	
Description	**Part Code**
MAIN PCB	PCB-ARC-200DSI
DRIVE CARD	PCB-DRV-02
GATE CARD	PCB-GATE-01
IGBT CARD	PCB-IGBT-200-01
INPUT BRIDGE CARD	PCB-IB-01
CAPACITOR CARD	PCB-CAP-200-01
CONTROL TRANSFORMER	CTRAX-009
MCB	MCB-1P-32A
OUT PUT FRM	FRM001
MAIN TRANSFORMER	MTRAX-200DSI
FAN (230V)	FAN006
CURRENT CONTROL POT	POT001
OUT PUT CONNECTOR EURO TYPE WITH STRIP	OCN-EURO-S35
LED RED	LEDR01
LED YELLOW	LEDY01
IGBT	IGBT-DS-7506
CAPACITOR-470MFD/450V	C2106
INPUT BRIDGE MODULE	IBDG005
RESONANT COIL	RS-COIL-200DSI
SHUNT (Small) 300A/75Mv	SHUNT-S-300-75