



## iPAK 150AA air cooled resistance welding inverter.

### Typical Configurations:



Inverter fully installed in a self contained cabinet with circuit breaker, ELR/GFI and internal cooling fans



Air cooled inverter ready to fit inside your existing cabinet.

iPAK 150AA typical suitable transformer/rectifier (Averaging Time 2 Seconds)			
Transformer type	TDC-1057	TDC-1057	TDC-6322
kVA	40 kVA	40 kVA	135 kVA
Transformer primary V	680 volts	680 volts	650 volts
Secondary Voltage	8.95 volts	4.47 volts	7.0 volts
Turns Ratio	76:1	152:1	92:1
Sec. Current @ 3%	11,400 Amps (C)	14,100 Amps (D)	13,800 Amps (C)
Sec. Current @ 10%	9,800 Amps (D)	9,800 Amps (D)	13,800 Amps (C)
Sec. Current @ 20%	7,395 Amps (T)	7,700 Amps (D)	13,800 Amps (C)
Sec. Current @ 50%	4,677 Amps (T)	6,000 Amps (D)	8,728 Amps (C)
Sec. Current @ 100%	3,307 Amps (T)	5,000 Amps (D)	6,172 Amps (C)
3 phase voltage	480v max	480v max	480v max

C=Limited by the inverter

T=Limited by transformer kVA

D=Limited by secondary diodes

### Important note:-

The current values shown in the above tables take no account of the secondary resistance of the machine, which in most circumstances will have a significant effect on the maximum current available from the system. The figures given are only intended as a guide and to demonstrate the limiting factors.

General Power Specification	
Maximum output power @ 20% Duty Cycle @ 2 seconds averaging time	97 kVA @ 480 V line voltage
Maximum line input voltage	480 V ac -20%+10%@ 50/60 Hz
Maximum output current – Limited electronically	150 Amps
Maximum Continuous output current	67 Amps
Maximum line input current per phase	87 Amps
Continuous equivalent rms line current per phase (150A@20%DC)	39 Amps
Power Factor	Leading
Current regulation and feedback	Primary and secondary
Current regulation accuracy	+/- 2 %
Current regulation repeatability	+/-1%
Inverter switching frequency	1 kHz
Maximum averaging time	2 seconds
Water flow rate	Not applicable (Air cooled)
Maximum inlet water temperature	Not applicable (Air cooled)



## **Installation of air-cooled iPAK 150AA inverter modules to qualify for warranty**

These notes are provided to assist customers who are installing inverter modules into their own equipment. Failure to follow these rules will render the warranty void.

1. The inverter must be fitted into a customer cabinet which is sealed against ingress of dust.
2. There must be a free air space around all sides of the inverter module of at least four inches or 100mm.
3. The cabinet internal ambient temperature must not rise above 35 degrees Centigrade(95 degrees Fahrenheit) when under normal operating conditions.
4. All entry and exit conduits must be sealed with appropriate bulkhead fittings or glands.
5. All unused holes must be sealed.
6. If the customer cabinet is fully sealed, its volume must be at least 10 cubic Feet to allow sufficient convection to take place. A smaller cabinet can be used, but this must be fitted with a fan and filters (inlet and outlet) to provide an adequate air flow system or alternatively use air conditioning.
7. The inverter must be supplied with a three phase AC via an earth leakage circuit breaker (ELCB or GFI), rated at 63 to 80 Amps, with thermal and magnetic trips. This is required to provide protection for the inverter in the event of a device failure.
8. Maximum load/transformer kVA must not exceed 75 kVA.
9. Duty cycle limits must not be exceeded beyond those specified in the BFE data sheet.
10. Air cooled inverters are not recommended for use in climates where the ambient daytime temperature regularly exceeds 30 degrees Centigrade or 86 degrees Fahrenheit.

If the above conditions cannot be met, BF ENTRON can supply a self contained small cabinet with earth leakage circuit breaker and filtered air flow arrangement.

### **Important Notes – Warranty Exclusions:**

- a. Excessive dust or moisture contamination may render the warranty void.
- b. Excessive internal cabinet temperatures may cause the inverter to be damaged and the warranty will be void.
- c. Evidence of significant inverter damage as a result of unprotected flash over as a result of no ELCB (GFI) being fitted will render the warranty void.

**Suggested Minimum Electrical Installation Data for iPAK 150AA:****Important Note:-**

All the calculations for cable sizing assume that the inverter will be used at maximum permissible current and maximum permissible duty cycle, but within the inverter specification.

**WARNING**

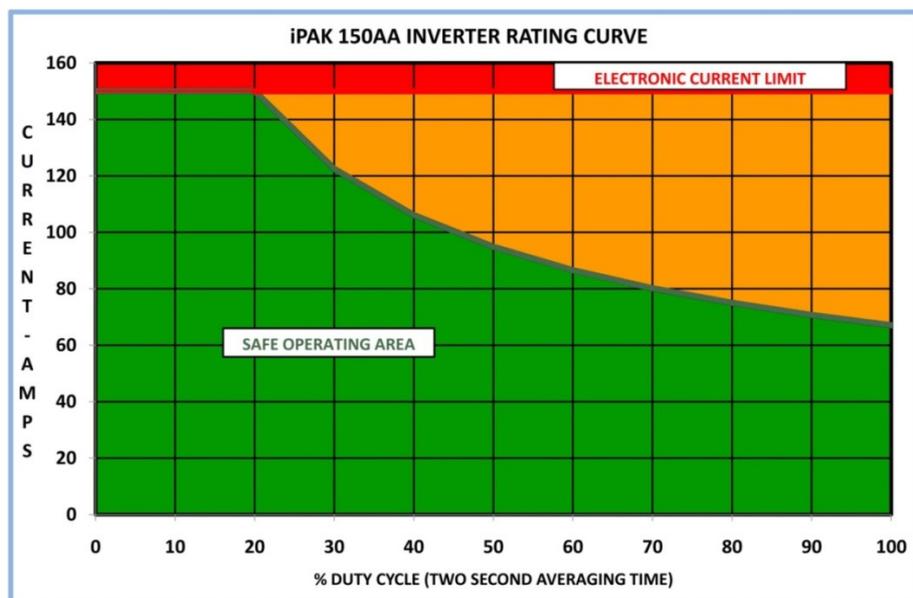
The calculations given below are intended as a guide, and should therefore be checked by a professional electrical engineer to ensure that local installation regulations are met.

**Assumptions for three phase supply feed:**

Ambient temperature	= 30°C (86°F)
Cable Insulation	= Butyl
Conductor temperature	= 85°C (185°F)
Maximum volts drop at full load	= 5% of nominal supply voltage.
Continuous current rating for cable sizing	= 38 Amps (thermal equivalent current)
Current rating for volts drop	= 87 Amps
Recommended fusing	= 100 Amps HRC
Recommended thermal/magnetic circuit breaker	= 63 Amps with ELR or GFI
Minimum cable size for 10 metre feed cable	= 6 sq. mm (12 kMCM) (Trefoil)
Volts drop over 10 metres of cable @ 87 Amps	= 5.9 volts/10 metre length of run

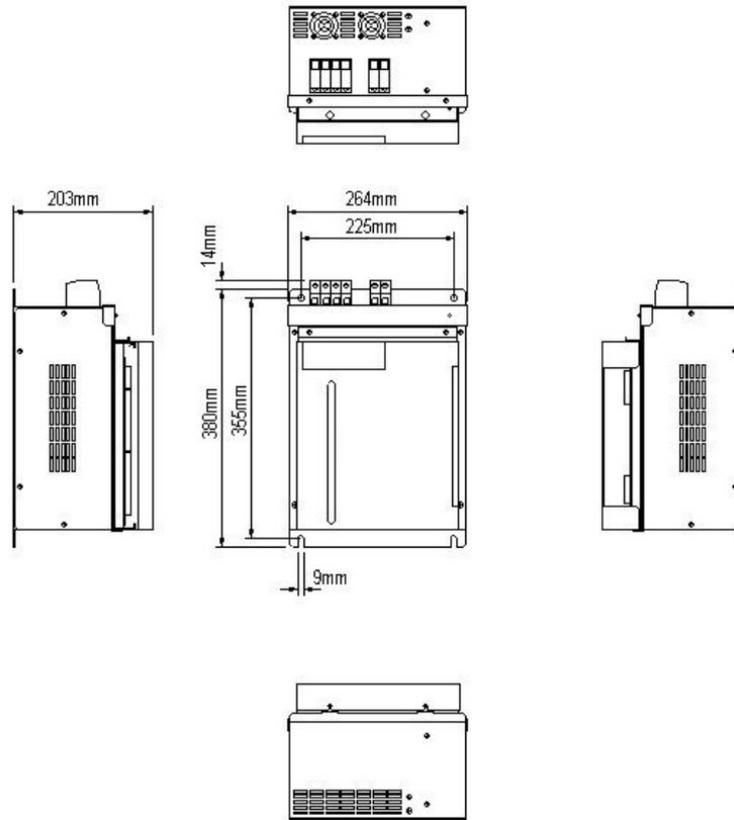
**Assumptions for Welding transformer feed:**

Ambient temperature	= 30°C (86°F)
Cable Insulation	= Butyl
Conductor temperature	= 85°C (185°F)
Maximum volts drop at full load	= 5% of nominal supply voltage.
Continuous current rating for cable sizing	= 67 Amps (thermal equivalent current)
Current Rating for volts drop	= 150 Amps
Minimum cable size for 10 metre feed cable	= 10 sq. mm (138 kMCM) (flat spaced)
Volts drop over 10 metres of cable @ 150 Amps	= 6.0 volts/10 metre length of run

**Rating Curve**



### Outline Drawings - Inverter Only:-



### Outline Drawing – Optional Air Cooled Compact Case:-

