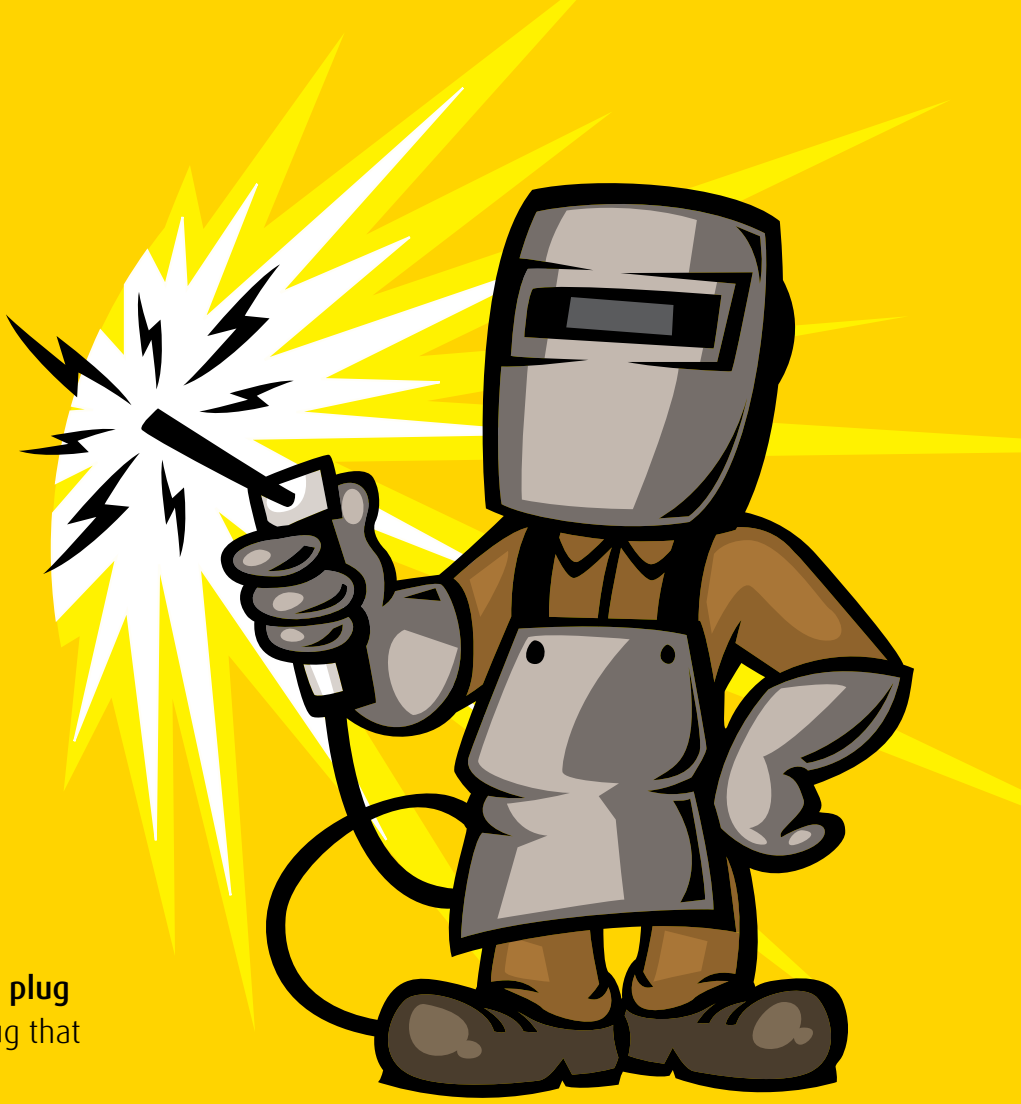
BOC
A Member of The Linde Group

Switch on to electrical safety

for single-phase equipment



BOC welding machines are designed and manufactured to conform to **IEC 60974** or **AS 60974**. This Standard not only covers the **machine** but also the **input cable** and **plug requirements** including the size of the plug that should be used.

X Rated duty cycle

I_1 Rated supply current

I_0 Rated no-load supply current

AS 60974-1
Formula in clause 3.33
Maximum effective supply current
$I_{1eff} = \sqrt{I_1^2 \times X + I_0^2(1-X)}$

The I_{1eff} determines the correct plug, input cable and input current required for each machine.

	min–max cable size
$I_{1eff} \leq$ **10A**	1.5–2.5 mm²
$I_{1eff} \leq$ **15A**	1.5–4 mm²
$I_{1eff} \leq$ **25A**	2.5–6 mm²
$I_{1eff} \leq$ **32A**	4–10 mm²

size must be indicated on the cable

DO

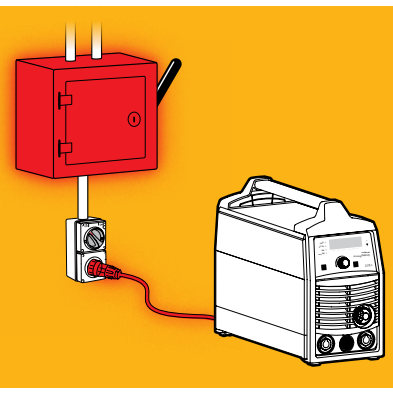
✓Use the **correct input current**, ✓**cable** and ✓**plug** in accordance with AS 60974-1 for your **safety** and to get the **maximum performance** from your welding machine.

Example

If the I_{1eff} rating on your machine is **27A** then you **must use a 32A plug** as a 15A is undersized for the welding current being used and may cause the cable to overheat.

DON'T

✗ Don't risk **damage to your machine** or **cause tripping and/or fire** by using the **wrong input current, cable** or **plug**.
✗ Don't tamper with plugs or file down earth pins. Doing so will void warranty.



Always

✓Inspect cables and plugs regularly. ✓Contact a qualified electrician for advice and/or upgrade and, if needed, to replace any damaged plugs or cables.

How important is the correct input cable and plug on a welding machine?

The size of the plug depends on a formula that not only uses the maximum current draw but also the duty cycle of the power source. The use of any welding power source will not only cause the machine itself to heat up, but the input cable, plug and mains power circuit will increase in temperature as well. That's why it's important to understand input and output currents and to make sure that the input circuit is correctly rated to supply the required input draw. This allows the machine to operate at or near maximum output and protects the circuit board from tripping, overheating and/or catching fire.

For your safety, BOC meets AS/NZS Standards for safe electrical compliance.

E4824 Regulatory Compliance Mark (RCM) and number

All BOC welding machines undergo an independent certification process to meet Australian and New Zealand regulations regarding electrical safety. The triangle-circle-tick (RCM) symbol signifies that BOC has taken the necessary steps to have the product comply with the electrical safety and/or electromagnetic compatibility (EMC) legislative requirements as specified by the Electrical Regulatory Authorities Council (ERAC). Depending on the machine, BOC may be required to have a 32A single phase plug to ensure that when the machine runs at its maximum output, the input supply plug and lead will not overheat. For your safety, please check for this symbol before buying any welding machine in Australia and New Zealand.

Check the rating plate on your machine.

All welding machines that comply with IEC 60974 or AS 60974 must have a rating plate similar to the one shown. Welding machines draw some current when idle (not welding) and a higher current when welding. Effective rated primary current (I_{1eff}) combines the conductor heating due to these two levels of current. I_{1eff} is the maximum rated effective supply current that determines the minimum plug and input cable rating as well as the minimum capacity of the input circuit that the machine gets plugged into to safely operate the machine. Look for the I_{1eff} on the welding machine's rating plate and ensure that you have the correct input circuit to support this power draw.

Example of BOC rating plate

BOC Limited, 10 Julius Ave, North Ryde NSW 2113, Australia				
250 Multiprocess			E4824	
			AS/NZS60974-1 IEC/EN60974-10	
		50A/16.5V–230A/25.5V		
		X	25%	60%	100%
	U_0=63V	I_2	230A	190A	150A
		U_2	25.5V	23.5V	21.5V
		15A/10.6V–250A/20V		
		X	25%	60%	100%
	U_0=63V	I_2	250A	200A	160A
		U_2	20V	18V	16.4V
		15A/20.6V–220A/28.8V		
		X	25%	60%	100%
	U_0=63V U_i=17V	I_2	220A	170A	140A
		U_2	28.8V	26.8V	25.6V
1~(50/60Hz)	U_1~240V	MIG	I_{1max}=45A	I_{1eff}=26A
		TIG	I_{1max}=39A	I_{1eff}=23A
		MMA	I_{1max}=46A	I_{1eff}=27A
	S		IP21	Air cool

What if I don't have a 240 volt 15 amp or 32 amp outlet?

If you don't have a suitable power outlet, you should contact a qualified electrician to advise whether the wiring in your building will cater for a 15 amp or 32 amp outlet. You may also need to upgrade your circuit breakers and possibly switchboard to suit. Failure to do this may cause an electrical fire in the building which may void insurances.

Remember...

Before operating your welding machine, follow the instructions in the operating manual provided.
For more information refer to WTIA TN 22 – Welding Electrical Safety (Revised 2003) and WTIA TN 07 Health & Safety in Welding. If you have any queries please contact BOC **131 262** (AU), **1800 111 333** (NZ).

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