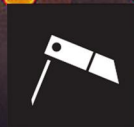




FORCEARC400 SiC

*SiC Welding Machines: Energy-Efficient,
Clean, and Compact – Perfecting Every
Weld and Shaping the Next Era of
Industry!*



What is SiC welding machine?

SiC welding machine is based on silicon carbide (SiC) power semiconductors (such as SiC MOSFETs or diodes) instead of traditional silicon (Si) components in its power electronics. It is an advanced welding system, this technology enables higher efficiency, faster switching speeds, and superior thermal performance, making it ideal for demanding industrial welding applications with high-performance, high-reliability.

Why Choose SiC?



Energy savings

- Lower Power Losses
SiC devices have 5–10x lower switching and conduction losses than silicon, improving overall efficiency by 5–10% and reducing energy waste.
- Reduced Electricity Costs
Lower energy consumption leads to cost savings, especially in high-duty-cycle operations.



Precision Welding Control

- Stable Output Current, smoother welds with fewer defects.
- Easily integrates with smart welding systems for real-time monitoring and adaptive control.
- Multi-Material compatibility, excellent for stainless steel, aluminum, copper, and high-reflectivity metals (e.g., laser welding).



Cleaner welds

- Enables cleaner arcs, less spatter, and better weld quality, especially for thin metals & aluminum.



Compact & Lightweight Design

- Up to 30–50% smaller than Si-based welders, ideal for portable or space-constrained applications.



Long-Term Cost Savings

- Higher upfront cost (2–3x Si-based machines) but return on investment in 1–3 years due to energy savings and durability.



Longer lifespan & Reliability

- Less thermal degradation, reducing maintenance and downtime.



Future-proof tech

- Scalable for smart manufacturing



Features

SiC Power Devices

- Replace conventional silicon IGBTs/MOSFETs with SiC transistors/diodes, reducing energy losses.
- Operate at higher voltages, temperatures, and frequencies than silicon.

High-Frequency Inverter Design

- Supports 100kHz+ switching (vs. <50kHz for Si), allowing for:
- Smaller, lighter transformers & inductors.
- More precise arc control.

Enhanced Thermal Management

- SiC components run cooler and more efficiently, even at 200°C+ (vs. ~150°C limit for Si).

Applications

- Precision welding (aerospace, EVs, batteries)
- Automated robotic welding (high-speed production)
- Aluminum & high-reflectivity metal welding (better arc stability)
- Harsh environments (high-temperature, workshops, outdoor, or industrial settings)

SiC welding machines represent the future of high-end welding, offering unmatched efficiency, precision, and reliability. As SiC technology becomes more affordable, adoption will accelerate in industrial and automated welding systems.

How It Differs from Traditional Welding Machines?

Feature	SiC Welding Machine	Silicon (Si) Welding Machine
Efficiency	~95–98% (lower losses)	~85–92% (higher losses)
Switching Speed	Ultra-fast (μ s response)	Slower (ms response)
Heat Resistance	Stable at 200°C+	Degrades near 150°C
Size/Weight	30–50% smaller/lighter	Bulkier, heavier
Cost	Higher upfront cost	Lower initial cost

FORCEARC400/500/500G SiC (SiC Stick Welding Machine)

Stick Power Source
Digital Display



Quick Specs

Applications

Semi Industrial
Industrial

Processes

STICK (SMAW)
STICK VRD
Lift TIG (GTAW)

FORCEARC400 SiC

Input Power 3 phase 380V
Amperage Range 40-350A
Net Weight 5.34kgs
Dimensions 360*158*260(mm)

FORCEARC500 SiC

Input Power 3 phase 380V
Amperage Range 40-500A
Net Weight 18kgs
Dimensions 480*204*303(mm)

FORCEARC500G SiC

Input Power 3 phase 380V
Amperage Range 40-500A
Net Weight 25kgs
Dimensions 540*360*300(mm)

FORCEARC400/500/500G SiC



Range is designed to provide basic functionality at an affordable price point, catering primarily to entry-level welders, hobbyists, and occasional users. It provides a balance between affordability and functionality, making them ideal for beginners or occasional users who require basic welding capabilities without the complexity or cost of more advanced equipment.



Reliability



Over Voltage Protection

Over voltage protection



Over Current Protection

Over current protection



Over Heat Protection

Over heat protection

Features and Benefits



- 3phs 220V
- 3phs 380v
- Arc force
- Anti-stick
- VRD
- LED display
- Suitable for vertical up and down welding (3G)
- Suitable for overhead position welding (4G)
- Over-heat protection (E01)
- Under voltage protection (E02)
- Optional remote control
- 3550 Dins socket



Side view

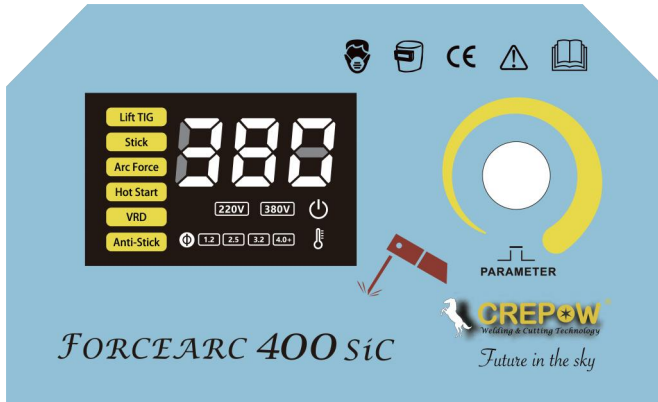


Front view



Rear view

Control Panel



Control Panel Features

- Press the encoder button to select and improve the argon arc welding current, manual welding current, thrust, thermal arc starting, anti-electric shock, and anti-sticking functions.
- When the machine is overheated, the digital tube will display E01, and the protection light will be turned on at the same time.
- When the machine has under-voltage protection, the digital tube will display E02, and the protection lamp will turn on at the same time.
- Anti-electric shock function
- Anti-sticking function

FORCEARC400/500/500G SiC Optional Accessorie

Machine Optional Accessories

- Earth Clamp
- Electrode Holder



FORCEARC400/500/500G SiC Accessories



Earth cable and earth clamp

Earth cable and earth clamp play critical roles in electrical safety by providing reliable grounding connections to protect personnel, equipment and facilities from electrical hazards and ensure proper functioning of electrical and welding system.

Cable section can be selected from 6mm² to 120mm².

Color of PVC jacket can be customized.

Earth clamp types can be customized.



Welding cable and electrode holder

Welding cables are flexible, highly quality insulation and heavy-duty cables designed to carry the electric current from the power source to the electrode holder and ultimately to the workpiece. High insulation, jaw mechanism and heat resistance ensure efficient welding operation and electrode performance.

Cable section can be selected from 6mm² to 120mm².

Color of PVC jacket can be customized.

Electrode holder types can be customized.



Welding gloves

Designed to provide protection to the hands and wrist of welders with excellent materials, heat resistance, insulation, durability and comfort.



Welding apron

Choosing the right welding apron depends on factors like the type of welding being performed (MIG, TIG, stick welding, etc.), comfort preferences, and the level of protection needed. Ensuring proper protection with a welding apron is essential for welders to work safely and confidently.

Machine parameters

Model	FORCEARC400 SiC	FORCEARC500 SiC	FORCEARC500G SiC
Input voltage	3phs AC380V±15%	3phs AC380V±15%	3phs AC380V±15%
Frequency(Hz)	50/60	50/60	50/60
Rated input current(A)	23	39	39
No load voltage(V)	62	68	68
Output Current (A)	40-350	40-500	40-500
Rated Output Voltage (V)	34	40	40
Duty Cycle @25°C (%)	80	80	100
100% Duty cycle @25°C	310	450A	500A
Duty Cycle @40°C (%)	60	60	100
100% Duty cycle @40°C	270	380A	500A
No-load Loss (W)	40	40	40
Efficiency(%)	85	85	85
Power Factor	0.93	0.93	0.93
Insulation class	F	F	F
Protection class	IP21	IP21	IP21
Weight (Kg)	5.34	18	25
Dimension(mm)	360*158*260	480*204*303	540*360*300

Special symbols



Three phases



Direct current



Constant current



Voltage Reduction Device



LED Display



Hot Start



Arc Force