

SiCMobile Family

Silicon Carbide **Mobile** Heat Treatment Unit



The SiCMobile Family

The **SiCMobile** family of power supplies corresponds to a range of Induction Heat Treatment Units (HTU) covering power levels up to 50 kW, frequencies in the range 10 to 50 kHz and 200% overcurrent capability for load matching or 10 minutes maximum.



SiCMobi Cabinet

SiCMobile heat treatment units are based on the ultimate power electronics technologies as Silicon Carbide (SiC) MOS Transistors, ultrafast high isolation circuitry and advanced transistor driving circuits and fully digital controller all integrated in a PCB, allowing an overall efficiency higher than 98% @ 40 kHz (inductor losses not included) and consequently very small and compact chillers.

SiCMobile Family has two cabinet options the **Mobi Cabinet (SiCMobi)** and the **Wall Cabinet (SiCWall)**.

SiCMobile is designed with two isolation transformers between mains and the inductor in order to increase the user's safety.

SiCMobile heat treatment units are very small and lightly heat treatment units thought for applications like brazing, sealing, bonding, etc. and includes in a single cabinet the power section, as well as the resonant capacitor bank and can be placed in a table as well as in a mobile unit. The output can be connected to a conventional or coaxial reactive matching transformer for load adaptation.

SiCMobile heat treatment units can handle two different power outputs totally independent each other with working possibilities at different power and frequencies at the same time.

SiCMobile heat treatment are very simple to operate as the control features simplifies the operation of the inverter and the HMI guides the user with very simple instructions to operate the machine.

Load matching in **SiCMobile** heat treatment is very simple task as the inverter has 200% overcurrent capacity making that every workpiece can be heated with the same inductor and due to their special design, these generators can provide 200% intermittent power with a duty cycle of 50%.



SiCWall Cabinet

THE MAIN ADVANTAGES OF SiCtech TECHNOLOGY

- ⇒ Wide Range of applications with the same generator.
- ⇒ Extremely high efficiency.
- ⇒ Very small size and weight.
- ⇒ Very high robustness due to the use of SiC MOS Transistors.
- ⇒ Very easy use of the generator due to the use of advanced cyber-physical algorithms that auto-adjust the generator depending on the required heating process.



The SiCMobile Family Features & Subsystems

SiCMobile heat treatment units ranges power from 12,5 to 50 kW. The supply voltage is 400 V_{AC} ± 10 % and the system is water cooled. As standard, **SiCMobile** Family include the Siemens PLC with communication capabilities via industrial buses like Profinet, Modbus, Ethernet etc. **SiCMobile** HMI options are a Siemens PLC and pyrometric control.



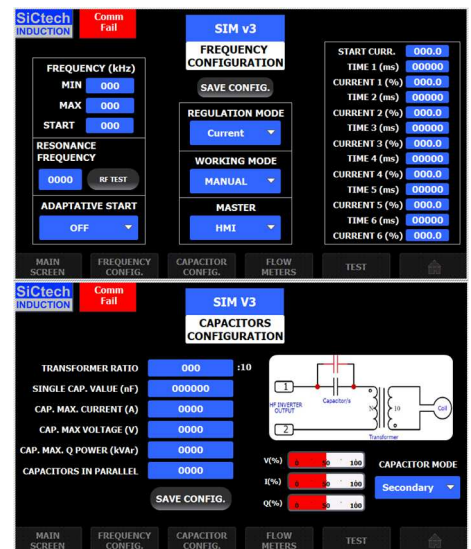
The **SiCMobile** family is based on the 25, 50 and 100 kW SiCtech MF power modules that include in a PCB, a plug-able FPGA controller as well as the power section and a water cooled heatsink that features all the requirements needed in an induction heating application.



SiCMobile heat treatment units can be mounted in a table as well as a mobile unit due to its small size and weight. The heating station can be a conventional tapped transformer, for extreme load variation adjustment in standby applications or a handheld coaxial transformer for mobile applications (LT...k50).



A highly interactive and comprehensible HMI based on SiCtech PLC, guides the user in any interaction with the generator as the starting up, the resonant frequency selection by autotuning, the matching of the load etc. and provides information on the status and working conditions of the generator at any time.



KEY FIGURES

- ⇒ Up to 50 kW Continuous Power
- ⇒ 10 - 50 KHZ
- ⇒ Up to 2 independent power ports
- ⇒ Connection to the heating station up to 10 m.
- ⇒ Programmable heating segments
- ⇒ 200% overcurrent capability for load matching
- ⇒ 200% intermittent power

The SiCMobile Family Technical Specs

SiCMobile Family	SiCMobi/SiCWall 12k50S Single	SiCMobi/SiCWall 25k50S Single	SiCMobi/SiCWall 25k50D Dual	SiCMobi/SiCWall 50k50S Single	SiCMobi/SiCWall 50k50D Dual
Total Continuous Output Power	12,5 kW	25 kW	25 kW	50 kW	50 kW
Output Circuits	1	1	2	1	2
Power per Output	#1: 12,5 kW	#1: 25 kW	#1: 12,5 kW #2: 12,5 kW	#1: 50 kW	#1: 25 kW #2: 25 kW
Total Intermittent Output Power DT: 50% or Tmax:10 min	#1: 25 kW	#1: 50 kW	#1: 25 kW #2: 25 kW	#1: 100 kW	#1: 50 kW #2: 50 kW
Output Frequency Range	10...50 kHz				
Inverter Efficiency	98,9 % @ 40 kHz				
Mains Voltage ⁽³⁾	400 V _{AC} ± 10 % (Three-Phase)				
Cos (φ)	> 0,99				
Heating Station	LT12k50	LT25k50	2x LT12k50	LT50k50	2x LT25k50
Inductor Short Circuit	Yes				
Controller	Fully Digital Controller				
Power Regulation ⁽²⁾	2...100 %				
Power Setting Time ⁽³⁾	< 1 ms				
SiCMobi Size (W x D x H)-cm	60x70x115	60x70x115	60x70x115	(4)	60x70x115
SiCMobi Weight (w/o coaxial trafo)	87 kg	90 kg	100 kg	(4)	114 kg
SiCWall Size (W x D x H)-cm	60x35x76	60x35x76	60x35x76	(4)	60x35x76
SiCWall Weight (w/o coaxial trafo)	73 kg	76 kg	86 kg	(4)	100 kg
Cooling	Water				
Water Max. Temperature	40 °C				
Minimum Water (including Heating Station)	15 l/min	15 l/min	15 l/min	25 l/min	30 l/min
Delta T	2,4 °C	2,4 °C	2,4 °C	2,9 °C	2,4 °C
Environmental Temperature Range	+5 °C to +50 °C				
Maximum Humidity	90 %				
User Interface	Siemens HMI KTP700				
Standard Fieldbus	ModBus TCP/IP				
Optional Fieldbuses	Profinet, DeviceNet,				
Optional External Control Unit	The Unit comprises: External Star/stop, External power control, External Emergency Stop				
Optional Temperature Control	Low temperature Pyrometer (150-400 °C); High temperature Pyrometer (500-1000 °C)				
Optional Cable Length	10 m				

NOTE: ⁽¹⁾ At Nominal Load
⁽²⁾ At Adaptive Mode
⁽³⁾ For 480 VAC contact with SiCtech
⁽⁴⁾ Contact with SiCtech

Subject to changes

