HIGH FREQUENCY CONVERTER SPARTAN

SECOM
Power Electronic Equipment & Components

Address
Via Archimede 18
Sesto San Giovanni (MI) 20099
Italy

Phone
T: +39 02.26.22.40.54
F: + 39 02.24.06.945

Email / Web
commericale@secompower.it
info@secompower.it
www.secompower.it

About Us

FOUNDED IN 1975, SECOM IS A LEADING COMPANY FOR THE DISTRIBUTION AND PRODUCTION OF COMPONENTS AND DEVICES FOR POWER ELECTRONICS

SECOM continuously carries out new research and technical proposal in conjunction with important clients, providing technical support to meet their specific needs.

Production excellence and efficient organization allow SECOM to commit itself to providing to the market with timely and professional service in numerous sectors of static energy conversion.
Flexibility and short delivery time have become pillars to SECOM's company policy.

WHO WE ARE >>

Over the years the company has become an important designer and manufacturer of power electronic devices for industrial automation manufacturing technologies

WHAT WE DO >>

SECOM studies and manufactures customized solutions on behalf of its customers.

CONTENTS

SPARTAN

OVERVIEW

SECOM introduced in 2013 a new series of frequency converters designed to supply power to equipment that incorporates technology currently used in induction heating, hardening, smelting and/or other applications where a resonant circuit is required.
H bridge configuration is used in SECOM induction heating converters.

The "**Spartan**" is an IGBT power electronic converter developed for high frequency Induction Heating application.
The load current and the output frequency of the application define the rated power of the Inverter.
The power module is water-cooled.

Strenght point of this solution are:
- IGBT High Frequency technology
- A drastically gas and smoke emission reduction typical of the old heating process
- A reduced energy consumption
- Immediate availability of the heating -> no need long start or stop sequences, as with traditional reheating furnaces.

SECOM
Power Electronic Equipment & Components

DIMENSION
DRAWINGS

The power converter of the series SD_LF is constituited by a removable module as shown in the figures below.

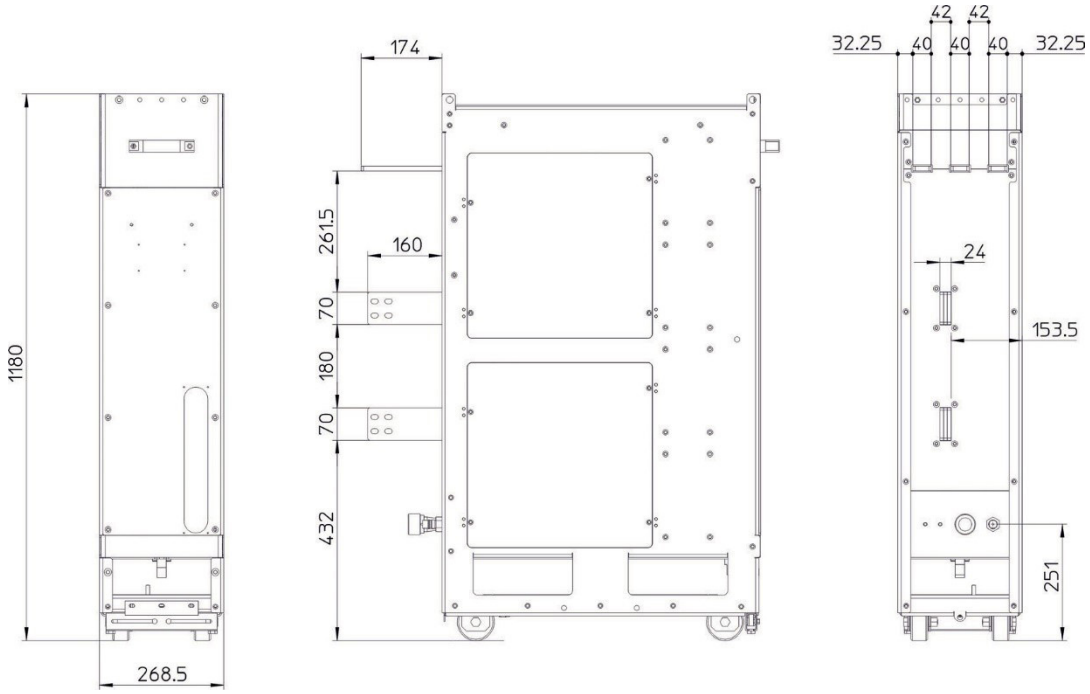

Fig. - Dimensions

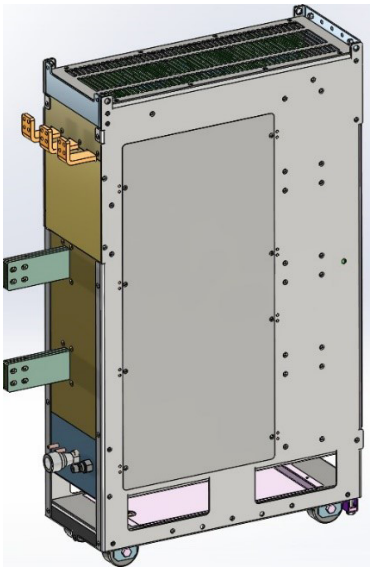

Fig. - Power connection

COOLING
SYSTEM

The power modules are equipped with a cooling system circuit to refresh and cool down the main power devices such as IGBT and input thyristors.
The inlet and outlet of the cooling system are located on the bottom rear side of the module. A system of quick connect couplings guarantee a faster operation maintenance.
The main cooling data have described in tables below.

Data	Value
Internal pipes water Volume (l)	4
Water Flow (l/min) min-max	50-80
Rated Pressure (bar)	2-4
Water Temperature (°C)	10-40*
Max Water Temperature (°C)	40*
Semiconductor losses (kW)	15
Busbar and internal losses (kW)	1,2

** For higher temperature is necessary to consider a derating of the power system*

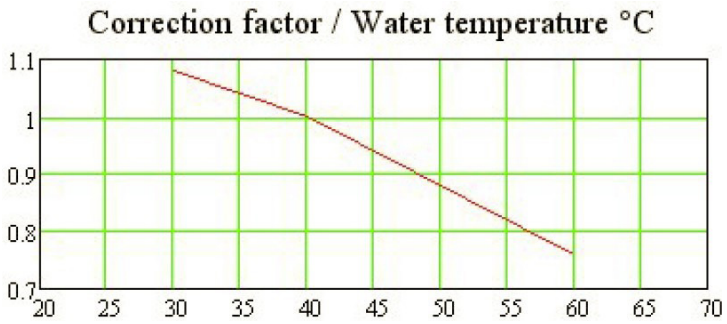

Fig. - Output current vs. water temperature

The power module is equipped with fans to ensure the cooling of the internal parts not water-cooled.
The cooling fans have to be supplied by an external power supply 230V_{AC} 50Hz.

COOLING
SYSTEM

In the figure below, output current capability as frequency function has been described.
Two limits has to be respected: capacitor limit do to input capacitor ripple and thermal limit.
For higher current capability at lower output frequency is necessary a larger capacitor banks.

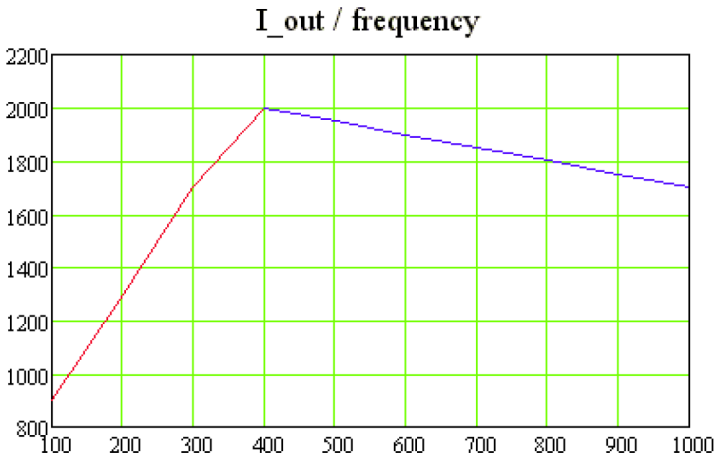

Fig. - Output current vs. output frequency

SECOM
Power Electronic Equipment & Components

TECHNICAL
DATA

Ambient conditions	
Altitude	1000 m. a.s.l.
Air temperature	0 ÷ 40°C
Storage temperature	0 ÷ 50°C
Relative humidity	10 ÷ 90 %

Dimensions and weight	
Height	1180 mm.
Width	270 mm.
Depth with long connection	898 (690+208) mm.
Weight	160 kg.

Electrical data	
Inverter rectifier type	Three-phase thyristor bridge I_N= 1250Adc I_{MAX}= 1500Adc
Fuses (external)	(1250 A aR type suggested
Output Inverter type	H bridge IGBT inverter
Cooling system	Air/water
Rated current	1700 A
Commutated current	1700 A
Supply voltage	400 ÷ 720Vac
Output voltage (square waveform)	up to +VDCBUS
Output frequency	200 ÷ 1000 Hz

The main technical data of the power converter (type LF_H) are given below:

Description	N. Module	AN kVA	$I_{CONT. MAX}$ A	$P_{CONT. MAX}$ kW	Dimensions (W*D*H) mm
AC/AC Inverter 380-415 @ 1 kHZ					
SD220V04.LF	1	220	540	204	898*270*1180 mm.
SD280V04.LF	1	280	670	255	898*270*1180 mm.
SD560V04.LF	1	560	1340	510	898*270*1180 mm.
AC/AC Inverter 440-480 @ 1 kHZ					
SD310V05.LF	1	310	640	280	898*270*1180 mm.
SD340V05.LF	1	340	700	306	898*270*1180 mm.
SD650V05.LF	1	650	1350	595	898*270*1180 mm.
AC/AC Inverter 500-690 @ 1 kHZ					
SD450V06.LF	1	530	770	383	898*270*1180 mm.
SD600V06.LF	1	600	870	434	898*270*1180 mm.
SD1170V06.LF	1	1170	1700	850	898*270*1180 mm.

SPARTAN

CABINET LAYOUT

SPARTAN
CABINET LAYOUT

Via Archimede 18
Sesto San Giovanni (MI), 20099

CONTACT INFO

T: +39 02.26.22.40.54
Fx: +39 02.24.06.945

info@secompower.com
commerciale@secompower.com
www.secompower.it