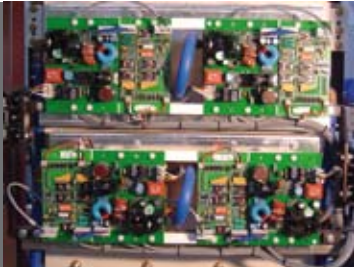


## CELES IS 50 - 4000



Heating before and after Curie point at same power output  
Solid state technology with IGBT transistors  
Excellent efficiency  
Easy operating and maintenance  
Network power factor is higher than 92%

→ Designed for Induction Heating Applications requiring power from 50 kW to 4000 kW and frequency from 500 Hz to 50 kHz.



High power inverter bridge

**Celes IS** power supply is a static frequency converter designed by **FIVES CELES** for most demanding induction heating applications in various industries. Any power between 50 kW and 4MW with frequencies between 500 Hz and 50 kHz can be provided. Thought to decrease the energy bill, this reliable product guarantees lowest operating costs.

### ADAPTABILITY TO YOUR PRODUCTS

#### Modular design

- Modular high power inverter bridges allow to built any configuration.
- By adjusting parameters on the universal control board, the inverter bridge can heat any type of parts.
- Power supply adaptation to the load no matter the oscillating circuit frequency, the impedance and the power range.

#### PWM Mode - Selection of the frequency

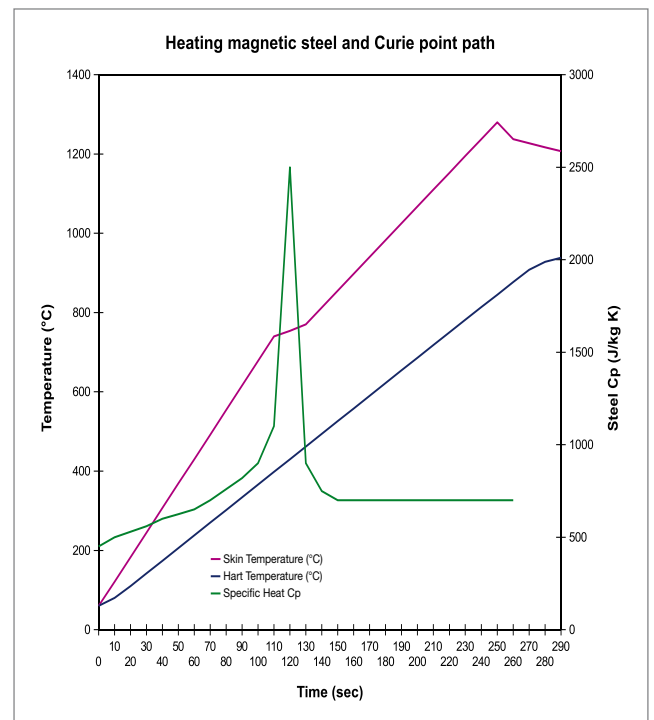
In some case the power supply control mode allows to work without using load matching capacitors. The frequency necessary for the process load is then determined by the power supply controlled with Pulse Width Modulation. To know if your process fits PWM conditions please contact us.

#### Fast power output changes

CELES IS control mode allows for adjusting power output in a few milliseconds. This capability fits for use in specific heat treatment applications and in very dynamic heating situations.

#### Full power before and after Curie point

Fives Celes impedance self-adaptation system allows to inject full power in the heated part even though geometric or physical features of the product might vary. A typical variation of the load impedance is the Curie point path, when steel becomes amagnetic the chart here under shows that the power output is constant.



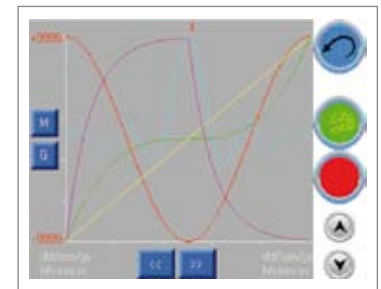
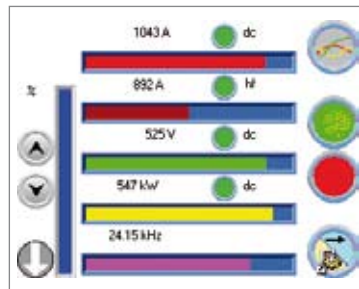
### MAINTENANCE AND SAFETY ORIENTED

The CELES IS has full protections against all operational hazards:

- Inductor short circuit protection.
- Open inductor fault condition.
- Overload protections, etc.

This generation of power supplies are almost maintenance free:

- Reliability proven on 24hr continuous production lines.
- 100 last faults are stored for an easy fault analysis.
- Main components on drawer configuration for direct access.



Example of Man Machine Interface Screens

## CONTROL OF YOUR HEATING PROCESS

Solid and reproducible processes are possible thanks to pre-set heating recipes.

CELES IS has several control modes:

- Power regulation.
- Inductor current regulation.
- Power = A x Speed + B type for continuous moving application.
- Temperature regulation with pyrometer or thermocouple power control.

All heating data storage with Ethernet link or SD card.

User friendly Man Machine Interface:

- Color touch screen.
- Simultaneous display of power, voltage, current and frequency readings.
- Display of set point, alarms, etc.

Various communication set:

- Analogic I/O.
- Set point with 4-20mA signal.
- Modbus or Ethernet link.
- Distance control through Internet.

## TOWARDS AN OPTIMAL INTEGRATION

### Low energy consumption

Energy saving has always been one of Fives Celes major concerns:

- Patented high flux technology.
- R & D on induction energy efficiency.
- Optimization of the heatstation design in order to commute the minimum active power.

Beside energy savings on the power supply Fives Celes defines the oscillating circuit, the capacitor bank and the inductors to be low energy consumers.

The quality and care during Fives Celes equipment manufacturing ensures a return on investment during the entire life span of the installation.

### 100 % power supplies tested before delivery

- For every application the full oscillating circuit (power inverter, heatstation and inductor) is tested on Fives Celes platform at full power and full current.
- To avoid eventual hot points the monitoring with a thermographic camera is often done.
- Performing those tests plus the pre-acceptance at Fives Celes provides for easy integration of the equipment and years of reliable production.

### Good network connection

CELES IS power supplies are mostly connected to facility incoming power at 400 V, 480 V or 690 V +/- 10% (other possible voltages can be provided as an option).

For high power requirements twelve phase network connections are provided. The power control of the CELES IS power supplies are warranted to have a network cos phi greater than 0.92 for three phase connection and greater than 0.96 for twelve-phase connection.



Test of CELES IS 1,2 MW dedicated to strip heating

#### AVAILABLE OPTIONS

- Incoming transformer
- Siemens, Schneider, Allen Bradley PLC's...
- Fives Celes cooling unit
- Insulating fault detection
- Regulating and/or programming of temperature
- Reinforced protection class
- Air conditioned enclosure
- Remote control panel
- Change over for a second heatstation
- Long distance between power supply and remote heatstation

#### EXISTING APPLICATIONS

- Heating iron and steel industry products (strips, bars, rails, tubes, wires, etc...)
- Copper Brazing in coil winding industry
- Fusion of metals and glass oxides
- Hardening
- Heating before forming
- Graphitization furnace
- Ozone generation
- Continuous drying of products, paint, etc...

Our permanent development efforts may lead us to modify this description without notice.

#### Fives Celes

89 rue principale B.P. 5  
68610 Lautenbach - France  
Phone : +33 (0) 3 89 74 55 00  
Fax : +33 (0) 3 89 76 36 79  
Email : [fivesceles@fivesgroup.com](mailto:fivesceles@fivesgroup.com)