THE NEW EVOLUTION OF HFI WELDER
HIGH EFFICIENCY WITH SILICON CARBIDE TRANSISTORS

ADVANTAGES

- ENERGY EFFICIENT: reduced energy cost by drastic reduction in transistors using the SiC technology
- COMPACT DESIGN: single generator cabinet up to 500 kW mounted directly over the mill
- INCREASED PRODUCTIVITY: quick change power inverter racks
- SHORT CIRCUIT TOLERANT: short circuit protection from the coil to the tube
- CONSTANT POWER FACTOR: 95% maintained throughout the entire power range
- FREQUENCY VARIABILITY: auto-tuning of frequency (30% capability)
- VERSATILITY: 30% power overrating for load adaptation
- INTERNAL ADJUSTMENT SYSTEM: X, Y, Z internal coil arm positioning (up to 500 kW)
MOSWELD SiC is the ultimate solid state power supply using Silicon Carbide transistor technology, the highest overall energy efficiency (more than 90%) in the market allowing to decrease the production costs.

**FOUR REASONS TO CHOOSE A MOSWELD SiC**

- **Money Saving**
- **Energy Saving**
- **Compact**
- **Easy maintenance**

**MACHINE FEATURES**

- Modular Silicon Carbide based Inverter
- MOSFET transistors with SiC substrate
- Single cabinet design up to 500 kW
- Dual cabinet design from 600 – 1200 kW
- Load short circuit protection
- XYZ table inside the cabinet up to 500 kW
- Easily adaptable to existing coil designs in most cases
- Sliding power modules for easy maintenance
- Fully-automatic remote controls
- Proven reliability in tube mill environments

**A GLIMPSE AT SEMICONDUCTOR TECHNOLOGY**

MOSFET transistors with SiC substrate allows increased efficiency and reduced maintenance by eliminating a large number of semiconductors, firing and protection circuits, interconnection wiring, and water cooling components.

**Comparison by power loss in one 100 kW bridge**

- 100 kW traditional Si transistors
- 100 kW + 30% of overcapacity SiC devices

| 64 X Si Mosfet’s | Power loss = 12.8 kW | VS. |
|------------------|-----------------------|
| 4 SiC Mosfet’s   | Power loss = 1 kW     |

**Internal XYZ table**

A/C included
Silicon Carbide SiC transistor technology allows for higher capacity device utilization. Larger capacity reduces the quantity of devices required over traditional Si transistors and increases reliability. In the end, this simplistic design gives advantages over traditional complex Si transistor designs in lower overall operational cost.

An optimized control is adopted to limit the sensitivity to short circuits, minimizing downtime and also protecting the system. Galvanic insulation is provided by means of a transformer placed between an inverter and an oscillator.

Auto-tuning for coil adjustment and intrinsic load adaptation features are implemented for easy welder usage. Three-axis adjustability is integrated in the welding head.

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TECHNICAL INFO

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous output power</td>
<td>100 – 1200 kW</td>
</tr>
<tr>
<td>Power regulation range</td>
<td>1 – 100%</td>
</tr>
<tr>
<td>Frequency range</td>
<td>100 – 400 kHz</td>
</tr>
<tr>
<td>Voltage supply</td>
<td>(400,480) V ± 10% 50, 60 HZ (no input transformer required)</td>
</tr>
<tr>
<td>Power factor</td>
<td>&gt; 0.95 at any load</td>
</tr>
<tr>
<td>Air Conditioning</td>
<td>Included</td>
</tr>
<tr>
<td>Control welder</td>
<td>Siemens PLC</td>
</tr>
<tr>
<td>Standard color</td>
<td>Light grey RAL 7035</td>
</tr>
</tbody>
</table>

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Sliding power modules
EMMEDI Line of Products

For over five decades, Emmedi has earned an outstanding reputation in the tube industry for reliability through superior technology and quality of design. The Emmedi line of products is recognized worldwide as an industry leader with over 1000 global installations. Emmedi welders have been installed throughout the world since the early 1960's. Our welders have earned a reputation for their reliable design and advanced engineering. From vacuum tube to solid-state welders, and now pioneering the NEW SiC technology, Emmedi is still leading and pioneering technological advancements in the market.

Emmedi supplies a full line of products to the tube, pipe, and wire industries. With our affiliation within the Ajax TOCCO family of global product brands, we now offer expanded worldwide sales, service, support, parts and installation capabilities. www.saetemmendi.com

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Brookfield, WI ............................................... +1-262-317-5300

World Headquarters
Ajax TOCCO Magnethemic Corporation
1745 Overland Avenue NE
Warren, Ohio USA 44483
+1-330-372-8511
www.AjaxTocco.com

24/7 Customer Service: 800-547-1527

Ajax TOCCO Group Companies
www.saetemmendi.com