Changshu
Company profile
• Introduction

SACMI (Changshu) Machinery Equipment Co., Ltd., is another subsidiary of SACMI Group. As SACMI’s business expands in China and neighbouring regions, the original production capacity can no longer meet the demand of our clients. As a result, SACMI Group decided to set up the SACMI (Changshu) Machinery Equipment Co., Ltd., in Changshu Economic Development Zone. At present our company has 39 employees.
The investment is 200 million EUR. We have one 6000 m\(^2\) workshop, one 3000 m\(^2\) and another 4000 m\(^2\) warehouse.
Riedhammer Company, an affiliate of SACMI Group is also incorporated in the Changshu plant. Riedhammer is one of the world’s leading industrial kiln producers. Its product portfolio includes: tunnel and shuttle kilns, pusher-type kilns, roller hearth kilns, top-hat kilns, rotary kilns, pendulum kilns, etc.

The company also provides services like technical assistance for on-site installation, testing, training, quality supervision, etc. Our company has 1 manager and 3 engineers from German Riedhammer Company.
SACMI Haining Office was established at the end of 2009. It is a representative office for Riedhammer – a company of SACMI Group. There are 3 staffs working in this office. Now there are 5 Riedhammer kilns in Haining area and 4 kilns are in processing.

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Organization Chart

G.Mgr
Mr. Facchini

Admin. Dept.
Sale Dept.
Purch. Dept.
Finance Dept.
Tech. Dept.
Prod. Dept.
QC Dept.
Logistic Dept.
GM office
Business Scale

Production and Sales of Industrial Kilns
- Introduction
- Tunnel kilns
- Roller hearth kilns
- Pusher type kilns
- Shuttle kilns
- Workshop
- Customers
SACMI/Riedhammer, Changshu produced so far several tunnel and shuttle kilns as well as roller hearth kilns for the Sanitary, Tableware, Technical Ceramics and Refractory market, pusher type kilns (several as gas tight applications) as well as special H₂ pusher type kilns for Ferrites and Advanced Materials. The kiln portfolio range is from 600°C up to 1850°C.
• Business Scale

Kiln Department - Introduction

1. Roller hearth kiln modules for 1250
2. Tunnel kiln modules for 1250
3. Tunnel kiln cars
• Business Scale

Kiln Department – Sanitary Tunnel Kiln
Kiln Department – 8m Roller Kiln

• Business Scale
Kiln Department – 30m Roller Kiln

- Business Scale

1. Brick lining at the workshop
2. Final assembly of roller hearth kiln at site
Business Scale

Kiln Department – 36m Pusher Kiln
Business Scale

Kiln Department – 36m Pusher Kiln

SACMI
1. Lifting Door System
2. Piping System
3. Shuttle Kiln Modules
Business Scale

Kiln Department - Workshop
## Technical Data

<table>
<thead>
<tr>
<th></th>
<th>TWS 87/300/80-G</th>
<th>TWS 105/300/80-G</th>
<th>TWS 126/300/80-G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiln length</td>
<td>87</td>
<td>105</td>
<td>126</td>
</tr>
<tr>
<td></td>
<td>m</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td>Useful width</td>
<td>3.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>Useful height</td>
<td>800</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>Maximum temperature</td>
<td>approx. 1.300</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ºC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of burner groups</td>
<td>8</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>No. of burners</td>
<td>74</td>
<td>94</td>
<td>114</td>
</tr>
<tr>
<td>Car length</td>
<td>1.500</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>Cars in the kiln</td>
<td>58</td>
<td>70</td>
<td>84</td>
</tr>
<tr>
<td>Heating medium</td>
<td>LPG or natural gas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connected load - fuel</td>
<td>2.965</td>
<td>3.657</td>
<td>4.349</td>
</tr>
<tr>
<td></td>
<td>KW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required gas pressure in the supply line</td>
<td>1</td>
<td></td>
<td>bar</td>
</tr>
<tr>
<td>Connected load – electric energy</td>
<td>153/115</td>
<td>183/137</td>
<td>203/152</td>
</tr>
<tr>
<td>Three-phase current mains</td>
<td>400/230/50</td>
<td></td>
<td>V/Hz</td>
</tr>
</tbody>
</table>
## Business Scale

### Data for maximum capacity

<table>
<thead>
<tr>
<th></th>
<th>TWS 87/300/80-G</th>
<th>TWS 105/300/80-G</th>
<th>TWS 126/300/80-G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firing temperature, first firing</td>
<td>1,250 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production per day</td>
<td>2,320 pcs/24 h</td>
<td>2,800 pcs/24 h</td>
<td>3,360 pcs/24 h</td>
</tr>
<tr>
<td>Kiln time, first firing</td>
<td>34,8 hours</td>
<td>42 hours</td>
<td>50,40 hours</td>
</tr>
<tr>
<td>Kiln time, second firing</td>
<td>17 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting density</td>
<td>5,5 pcs./m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanitary pieces per car</td>
<td>25 pcs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of cars per day</td>
<td>approx. 92,8 cars</td>
<td>approx. 112 cars</td>
<td>approx. 134 cars</td>
</tr>
<tr>
<td>Pushing cycle</td>
<td>approx. 15,52 min/car</td>
<td>approx. 12,86 min/car</td>
<td>approx. 10,71 min/car</td>
</tr>
<tr>
<td>Average weight per piece</td>
<td>approx. 15 kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product on one kiln car</td>
<td>375 kg/car</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setters on one kiln car</td>
<td>75 kg/car</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiln car superstructure of one kiln car</td>
<td>290 kg/car</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spec. fuel consumption kcal/kg related to product only</td>
<td>1,200 ± 10 % kcal/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Useful waste heat</td>
<td>approx. 18,700 m³/h</td>
<td>approx. 22,380 m³/h</td>
<td>approx. 26,050 m³/h</td>
</tr>
</tbody>
</table>
Kiln configuration

• Business Scale

Roof air injection

- For good temperature uniformity
- 4 roof air injections each side under the roof
- All injections with ceramic nozzle and individually adjustable
- Stainless steel piping
Kiln configuration

Contravec air system

Contravec air
- To create counterpressure to firing zone
- 1 nozzle under the roof
- 2 nozzles in each side wall, one below, one middle of setting deck
- All injections individually adjustable
## Technical Data

<table>
<thead>
<tr>
<th></th>
<th>HW 6/500/140-G</th>
<th>HW 9/500/140-G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiln length</td>
<td>8.400</td>
<td>11.400</td>
</tr>
<tr>
<td>Kiln width</td>
<td>6.200</td>
<td>6.000</td>
</tr>
<tr>
<td>Kiln height</td>
<td>5.900</td>
<td>5.000</td>
</tr>
<tr>
<td>Useful kiln volume</td>
<td>42</td>
<td>63</td>
</tr>
<tr>
<td>Useful kiln length</td>
<td>6.000</td>
<td>9.000</td>
</tr>
<tr>
<td>Useful kiln width</td>
<td>5.000</td>
<td>6.000</td>
</tr>
<tr>
<td>Useful kiln height</td>
<td>1.400</td>
<td>1.400</td>
</tr>
<tr>
<td>Useful room per kiln car</td>
<td>10.5</td>
<td>10.5</td>
</tr>
<tr>
<td>Number of cars in the kiln</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Maximum operation temperature</td>
<td>1.300</td>
<td></td>
</tr>
<tr>
<td>Connected load-heating energy</td>
<td>3.760</td>
<td>5.520</td>
</tr>
<tr>
<td>Heating medium</td>
<td>Natural gas (CNG)</td>
<td></td>
</tr>
<tr>
<td>Required gas admission pressure in the supply line</td>
<td>80</td>
<td>mbar</td>
</tr>
<tr>
<td>Connected load – electric energy</td>
<td>52/37</td>
<td>63/45</td>
</tr>
<tr>
<td>Three-phase current mains</td>
<td>400/230/50</td>
<td>V/Hz</td>
</tr>
<tr>
<td>Kind of burners, firing principle</td>
<td>Nozzle mixing burners working with sweeping diffusion air</td>
<td></td>
</tr>
<tr>
<td>Number of main burners</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Number of regulation groups</td>
<td>2 + 2 subgroups</td>
<td></td>
</tr>
<tr>
<td>Firing atmosphere</td>
<td>Oxidising to neutral</td>
<td></td>
</tr>
</tbody>
</table>
### Business Scale

#### Data for maximum capacity

<table>
<thead>
<tr>
<th></th>
<th>HW 6/500/140-G</th>
<th>HW 9/500/140-G</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td>VC</td>
<td></td>
</tr>
<tr>
<td><strong>Firing cycle from cold to cold</strong> (depending on the products)</td>
<td>16 to 24 h</td>
<td></td>
</tr>
<tr>
<td><strong>Duration of heating phase</strong></td>
<td>8 to 12 h</td>
<td>8 to 12 h</td>
</tr>
<tr>
<td><strong>Duration of cooling phase</strong></td>
<td>8 to 12 h</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum firing temperature</strong></td>
<td>1.300 °C</td>
<td>1.300 °C</td>
</tr>
<tr>
<td><strong>Setting density – ware</strong></td>
<td>120 kg/m³</td>
<td></td>
</tr>
<tr>
<td><strong>First firing temperature</strong></td>
<td>1.240 °C</td>
<td></td>
</tr>
<tr>
<td><strong>Heating energy consumption for first firing</strong> (heating duration: 8 h) *</td>
<td>1.940 +- 10% kcal/kg</td>
<td></td>
</tr>
<tr>
<td><strong>Cycle time first firing</strong></td>
<td>16 h</td>
<td></td>
</tr>
<tr>
<td><strong>Cycle time refiring</strong></td>
<td>18 h</td>
<td></td>
</tr>
<tr>
<td><strong>Loading density</strong></td>
<td>5.2 pcs/m²</td>
<td></td>
</tr>
<tr>
<td><strong>Average weight per piece</strong></td>
<td>15 kg</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum weight per piece</strong></td>
<td>17 kg</td>
<td></td>
</tr>
<tr>
<td><strong>Number of loading decks</strong></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Number of pieces per car</strong></td>
<td>78 pcs/car</td>
<td></td>
</tr>
<tr>
<td><strong>Production per cycle</strong></td>
<td>312 pcs/cycle</td>
<td>468 pcs/cycle</td>
</tr>
</tbody>
</table>
**Kiln configuration**

**Kiln modules**

- Labyrinth and main burner blocks with bricks
- Side walls 250 mm total, fibre block 1430 °C, density 190 kg/m³
- Roof panels 250 mm total, fibre block 1430 °C, density 210 kg/m³
- Stainless steel foil as vapour barrier

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**Business Scale**

HWS - C
Kiln configuration

HWS - C

Flue gas channel

- Collection channel on top of the kiln
- Carbon steel, zinc corrosion protection and stainless steel foil
- Inside insulation, 200 mm total, 1260 °C, density 190 kg/m³
- Slabs to protect the suction holes against particles falling down
Kiln Department - Customers

SACMI/Riedhammer Changshu - Reference examples

- TOTO
- Roca
- KOHLER
- OSRAM
- FARR
- REFRA TECHNIK
- SINOSTEEL CORPORATION
- COSMO FERRITES LIMITED
- FERRO
- Houh Yow
- Ferro Magnetics (Shanghai) Ltd.
- SAMWHA
- SAMWHA ELECTRONICS
Kiln Department - Customers

SACMI/Riedhammer Changshu - Reference examples

- HANGFENG ELECTRONICS
- YONGLI
- LF
- KANGSHUN
- FYE (Ferrite Cores)
- HONG CHANG
- FEITENG
- FERRICO
- JPM
- TDG
- JINHUA ELECTRONIC
- YINDA
Many thanks for your kind attention