The combination and integration of the best Primetals’ EAF technologies and design features has led to the development of a new generation of electric arc furnaces – the EAF Ultimate.

This high-tech power package is characterized by superhigh power input, high shell and roof design, high efficiency automation, high-speed furnace equipment movement, performance-enhancing oxygen and carbon injection technology, short tap-to-tap times, and reliable operation. Its modular design, quick-change components, and easy access for simplified maintenance maximize furnace availability and steel output.

**PROCESS AND OPERATIONAL FEATURES**
- Superhigh power input (up to 1.5 MVA/t)
- Latest oxygen and carbon injection technology with RCBs (Refining Combined Burners)
- Furnace design for one-bucket scrap charging
- Automatic prepositioning of scrap bucket
- Continuous-feed systems for HBI and DRI (hot or cold)
- Hot-metal charging facilities
- Contact-free steel temperature measurements
- Automatic tap control with video camera
- Automatic slag detection system during tapping
- Taphole- and door-cleaning robots

**DESIGN AND EQUIPMENT FEATURES:**
- Robust and reliable equipment
- Gantry with single-point roof-lifting device
- Prismatic roller guide system for electrode masts
- High-capacity current-conducting electrode arms in copper-clad box design
- State-of-the-art electrode control system
- Copper or combi-panels with high-speed cooling water flow
- High furnace shell and roof for improved postcombustion
- All bottom tapping systems EO-EBT, EBT, RBT, OBT
- Crane with two auxiliary hooks for quick electrode exchange
- Split-shell design for fast exchange of shell sections
- Automatic taphole filling device
PLANT DATA

Design parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tap weight</td>
<td>145 t</td>
</tr>
<tr>
<td>Scrap charge</td>
<td>1 bucket</td>
</tr>
<tr>
<td>Transformer</td>
<td>155 MVA +20%</td>
</tr>
</tbody>
</table>

Performance values

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power-on time</td>
<td>31 min</td>
</tr>
<tr>
<td>Power-off time</td>
<td>7 min</td>
</tr>
<tr>
<td>Tap-to-tap time</td>
<td>38 min</td>
</tr>
<tr>
<td>Heats per day</td>
<td>&gt; 37</td>
</tr>
<tr>
<td>Productivity</td>
<td>230 t/h</td>
</tr>
</tbody>
</table>

Consumption values

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>340 kWh/t</td>
</tr>
<tr>
<td>Electrodes</td>
<td>1.2 kg/t</td>
</tr>
<tr>
<td>Oxygen</td>
<td>41 Nm³/t</td>
</tr>
<tr>
<td>Carbon charged</td>
<td>10 kg/t</td>
</tr>
<tr>
<td>Carbon injected</td>
<td>8 kg/t</td>
</tr>
</tbody>
</table>

MAIN BENEFITS

- High degree of flexibility with charge materials
- High reliability and availability
- Proven and profitable technology for any steel route (flat and long)
- Highest productivity resulting in dilution of fixed costs
- High-impedance furnace
- Arc voltage up to 1,650 V
- Proven low consumption values for energy, electrodes, refractories, etc.
- Minimum maintenance with the use of heavy mill-type components

SELECTED REFERENCES

- Acciaieria Arvedi S.p.A., Italy
- Kaluga – NLMK Group, Russia
- Çolakoğlu Metalurji A.S., Gebze, Turkey
- Revda – Maxi Group, Russia
- MMK – Magnitogorsk Iron and Steel Works, Russia