



# EAFF ULTIMATE

## WELCOME TO THE NEW GENERATION

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 repositioning 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



320 ton EAF Ultimate at Çolakoğlu, Turkey

## PLANT DATA

### Design parameters

Tap weight	145 t
Scrap charge	1 bucket
Transformer	155 MVA +20 %

### Performance values

Power-on time	31 min
Power-off time	7 min
Tap-to-tap time	38 min
Heats per day	> 37
Productivity	230 t/h

### Consumption values

Electricity	340 kWh/t
Electrodes	1.2 kg/t
Oxygen	41 Nm <sup>3</sup> /t
Carbon charged	10 kg/t
Carbon injected	8 kg/t

## 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 - Magnitorsk Iron and Steel Works, Russia