NEW 3200 mm PLATE-STECKEL MILL
AHMSA – ALTOS HORNOS DE MÉXICO, S.A.B. DE C.V.
In March 2007, Primetals Technologies received an order to supply a new Plate-Steckel rolling mill to AHMSA - Altos Hornos de México, S.A.B. de C.V. This was the first major hot rolling mill project in Mexico for a number of years. Once complete, the project will boost the product portfolio and production capability of AHMSA.

MAIN TARGETS OF THE INSTALLATION
The nominal annual production capacity is 1,000,000 tonnes of hot rolled products, of which 750,000 tonnes is hot rolled plate and 250,000 tonnes is hot rolled coil. To maximise product quality and productivity, Primetals Technologies have included a number of patented technological features.

Primetals Technologies were specifically responsible for:
• Engineering design and co-ordination for the Plate-Steckel Mill process technology
• Technical services including training
• Auxiliary equipment management
• Complete electrical and automation for Furnace, Mill and Shearing Line

The first plate and the first wide coil were rolled in the second quarter of 2013 at which time the commissioning period started in preparation for rolling many different grades of materials including API pipeline grades.

NEW PLATE-STECKEL MILL
COMPLETE PLATE MILL SOLUTIONS

TECHNICAL HIGHLIGHTS FOR PRIMETALS NEW PLATE-STECKEL MILL
• Flexible production unit for a range or grades including high strength line pipe plate
• Exact tolerances for temperature and geometry for the entire plate / strip length by multi-setpoint strategy
• Fast processing of widely differing plates / strips by analytic online process models and neural networks
• Automatic mill pacing for highly productive rolling
DESIGN DATA

PLATE-STECKEL MILL

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate thickness</td>
<td>4.5 - 50 mm</td>
</tr>
<tr>
<td>Plate width</td>
<td>1,600 - 3,200 mm</td>
</tr>
<tr>
<td>Plate length</td>
<td>6 - 40 m</td>
</tr>
<tr>
<td>Maximum rolling force</td>
<td>80,000 kN</td>
</tr>
<tr>
<td>Work-roll diameter</td>
<td>915 - 1,010 mm</td>
</tr>
<tr>
<td>Motor power</td>
<td>2 x 8,000 KW</td>
</tr>
<tr>
<td>Roll bend force</td>
<td>2,500 kN/side</td>
</tr>
<tr>
<td>Rolling speed</td>
<td>0 - 11.0 m/s</td>
</tr>
</tbody>
</table>

PRODUCTION DATA

PLATE-STECKEL MILL

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Production</td>
<td>1.0 Mtpy (hot rolled product)</td>
</tr>
<tr>
<td></td>
<td>750,000 tonnes hot rolled plate</td>
</tr>
<tr>
<td></td>
<td>250,000 tonnes hot rolled coil</td>
</tr>
<tr>
<td>Products</td>
<td>Structural Steels</td>
</tr>
<tr>
<td></td>
<td>Pipeline Steels</td>
</tr>
<tr>
<td></td>
<td>Shipbuilding Plate</td>
</tr>
</tbody>
</table>

SCOPE OF SUPPLY

- Coiler Furnaces and Pinch Roll Units
- Edging Mill Stand
- Plate - Steckel Mill Stand inc SmartCrown®
- Rotary Crop Shear
- Laminar Cooling Systems
- Downcoiler
- Hot Leveller
- Cooling Beds: 2
- Shear Line
- Basic & Process Automation from Furnace to Shearline
- Main & Auxiliary Drive Systems
- Commissioning
- Training
Primetals Technologies Limited
A joint venture of Siemens,
Mitsubishi Heavy Industries and Partners

Sheffield Business Park, Europa Link
Sheffield, S9 1XU
United Kingdom

primetals.com

Brochure No.: T04-0-N089-L4-R-V1-EN
Printed in Austria
© 2015 Primetals Technologies Ltd. All rights reserved.

The information (including, e.g., figures and numbers) provided in this document contains merely general descriptions or characteristics of performance based on estimates and assumptions which have not been verified. It is no representation, does not constitute and/or evidence a contract or an offer to enter into a contract to any extent and is not binding upon the parties. Any obligation to provide and/or demonstrate respective characteristics shall only exist if expressly agreed in the terms of the contract. These estimates and assumptions have to be analyzed on a case-to-case basis and might change as a result of further product development. Primetals Technologies excludes any liability whatsoever under or in connection with any provided information, estimates and assumptions. The provided information, estimates and assumptions shall be without prejudice to any possible future offer and/or contract. Any use of information provided by Primetals Technologies to the recipient shall be subject to applicable confidentiality obligations and for the own convenience of and of the sole risk of the recipient.