KZ4AT one-section AC Passenger Locomotive

KZ4AT one-section AC passenger locomotive is developed on the basis of the «Kazakhstan Temir Zholy» technical requirements and in compliance with GOST standards and specifications.

The locomotive has a cutting edge traction system based on Alstom’s technology and components produced by Alstom and Transmashholding.

KZ4AT is designed to operate in temperatures from -50 °C to +50 °C. It requires minimum maintenance and provides a high reliability level and low lifecycle cost, thanks to its modular design.

Serial production of the locomotive is done by the locomotive assembling plant Electrovoz Kurastyru Zauyty, jointly established by the Joint-Stock Company “National company «Kazakhstan Temir Zholy» (50%), Alstom (25%) and Transmashholding (25%) in Astana.

COMPETITIVE ADVANTAGES

Traffic optimization

- Speed of up to 200 km/h
- Longer runs between maintenance and repair
- Reduced power consumption
- Reduced locomotive maintenance costs
- Enhanced fleet management efficiency

Innovative solutions

- Asynchronous traction drive with per-wheel traction control
- Traction converter based on insulated gate bipolar transistors
- Microprocessor-based system for operation control, diagnostic and traffic safety
- Automatic train operation system using satellite navigation facilities
- Regenerative braking

Modular design

- Unified platform for both freight and passenger electric locomotives
- Modular approach allows for the maintenance to be unified and spare parts management to be optimized
- On the basis of this model, a DC or dual-voltage electric locomotive can be developed

Ergonomics and comfort

The cabin design provides the following conveniences for locomotive drivers:

- Climate control system
- Seat heating
- Meals cooking and storing facilities
- Toilet

The cabin complies with all current health, ergonomics and safety regulations.
KZ4AT
One-section AC passenger Locomotive

BASIC CHARACTERISTICS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheel arrangement</td>
<td>Bo-Bo</td>
</tr>
<tr>
<td>Class of service</td>
<td>Passenger</td>
</tr>
<tr>
<td>Body</td>
<td>Steel</td>
</tr>
<tr>
<td>Gauge</td>
<td>1520 mm</td>
</tr>
<tr>
<td>Overall dimensions</td>
<td>According to GOST 9238-83 1-T</td>
</tr>
<tr>
<td>Weight</td>
<td>86 tonnes</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-50°C to +50°C</td>
</tr>
<tr>
<td>Continuous shaft rating</td>
<td>4,800 kW</td>
</tr>
<tr>
<td>Overhead system</td>
<td>25 kV AC, 50 Hz</td>
</tr>
<tr>
<td>Maximum speed</td>
<td>200 km/h</td>
</tr>
<tr>
<td>Starting tractive power</td>
<td>270 kN</td>
</tr>
<tr>
<td>Regeneration braking</td>
<td>4400 kW</td>
</tr>
<tr>
<td>Maximum braking force</td>
<td>200 kN</td>
</tr>
</tbody>
</table>

ALSTOM AND TRANSMASHHOLDING
Joint Projects

Mainline electric locomotive’s market in CIS countries:

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