Electric Multiple Units and Locomotives Manufacturer
SOFTRONIC HOLDING

SOFTRONIC
Electric Multiple Units, Railway Equipments and Locomotives Manufacturer

CMF
Metallic Construction of Large and Small Subassemblies

SOFTRANS
Railway Passenger and Freight Transport Operator
Softronic deals with rail rolling stock construction, modernization, repairs and upgrades.

Established in Craiova Romania in 1999 with the main purpose of modernizing locomotives and producing railway safety equipment, **Softronic** is today the only Southeastern’s Europe manufacturer of Electric Multiple Unit trains and electric locomotives.

**Softronic** proudly continues the city’s tradition in the locomotive manufacture, our top engineers coming from the former Electroputere plant where over 3000 electric and diesel – electric locomotives were built.

With more than 200 locomotives modernized, 23 new locomotives built and over 400 employees, Softronic provides tailored and environmental friendly solutions to more and more clients.

**Softronic** values its employees (most of them young and top graduated from Universities) recognizing their importance helping them develop further, sustaining together the growth.
Our Timeline
For Softronic and Softrans

1999
Softronic Company is founded

2004
First locomotives are modernized

2004
Softrans company is founded with the initial purpose of testing Softronic’s rail vehicles

2008
The first AC-DC loco, PHOENIX, is produced after 1990

2008
200 locos were modernized

2008
6 Phoenix locos were built

2010
The first AC-AC loco, TRANSMONTANA, is produced

2010
The first low floor train, HYPERION, is produced in Romania

2013
Softrans obtains authorization for freight transportation

2013
Softrans begins freight transport in Romania

2014
Softrans obtains authorisation for passenger transportation

2014
Softrans begins operating passenger train Hyperion
PRODUCTION FACILITIES
Our production capabilities are able to create high precision products

Softronic has fully integrated production capabilities to manufacture locomotives and EMUs from the ground up and to provide complete overhaul upgrade, maintenance and testing services including all support systems in their entirety.
OUR GOAL
Our key to success is to develop rail vehicles for European clients capable to operate between Austria and Turkey.

Partners
- DB Schenker (Romania)
- Garanti leasing
- Unicredit leasing
- JME Consulting (Sweden)
- BCR leasing (Erste Group)
- Raiffeisen leasing
- Transilvania Bank

Main clients
- DB Schenker (Romania) 6 Softronic locos
- DB Schenker (Hungary) 9 Softronic locos
- MMV (Hungary) 5 Softronic locos
- CFR (Romania Rail States) 3 Softronic locos
- Cargotrans Vagon (Romania)
- Transferoviar Group (Romania)
For the last three years, Softronic has had a steady growth as we have increased significantly, thanks to the confidence that our clients have shown.

For 2014 we expect to grow by 30% on the strength of the investment in our training programs under expert management and by the increasing number of locomotives and EMUs operating.
BI-SYSTEM LOCOMOTIVE TRANS-MONTANA
TRANSMONTANA SOFTRONIC

Description

INNOVATIVE ENGINEERING

EXPERIENCE
By combining experience with innovations systematically oriented to client benefit and cost effective in 2010, Softronic built the first locomotive in Romania with asynchronous traction motors.

CLIENT’S NEEDS
Understanding the needs of transport operators we are able to offer a modern and reliable locomotive Transmontana specifically adapted for country conditions like: Romania, Hungary, Slovakia, Austria and Turkey etc.

BI-SYSTEM
The locomotive, equipped with regenerative braking (20% economy), is powered with 15 kV AC an 25 kV AC, capable of reaching speeds of 120 km/h when operating freight services and 160 km/h for passenger traffic.

POWERFUL SIX AXLE
Transmontana is a 6000 kW electric six axle vehicle with a modern design meeting all technical parameters and the following standards: EN, ISO, UIC and is registered at the ERA (European Railway Agency) database.
TECHNICAL DATA
Bi-system six axle locomotive

Train loads as function of different gradient and operating speed

- Tractive effort at start-up
- Train loads as a function of different gradient and operating speed

<table>
<thead>
<tr>
<th>v [km/h]</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>110</th>
<th>120</th>
<th>130</th>
<th>140</th>
<th>150</th>
<th>160</th>
</tr>
</thead>
<tbody>
<tr>
<td>F [kN]</td>
<td>435</td>
<td>388</td>
<td>340</td>
<td>300</td>
<td>260</td>
<td>220</td>
<td>180</td>
<td>140</td>
<td>100</td>
<td>60</td>
<td>20</td>
<td>0</td>
<td></td>
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</tr>
</tbody>
</table>

Traction engine: 6 x 1000 kW
Power: 6000 kW
Design speed: 120 / 160 km/h
Tractive force at Start-up: 435 kN
Traction Voltage: 25 kV-50 Hz / 15 kV 16.7- Hz
Safety Systems: PZB Indusi, EVM120, MIREL, LS90, WSP (Wheels anti slide and slip)
Control system: Micro-controllers and microprocessors based
ADHESION = **MAIN ADVANTAGE**

Six Axle Locomotive

**Six axle locomotive Transmontana** capable of towing trains up to 2800 tons

2800 tons, 650 m corn transport

**4 axle locomotive** capable of towing up to 1860 tons trains

1860 tons, 430 m corn transport

2800 tons trains needs **two 4 axles** locomotives increasing costs and reducing profit

2800 tons, 650 m corn transport
CONCLUSIONS

MAIN FEATURES

✓ Regenerative braking
✓ One hour power 6600 kW
✓ AC engines
✓ Six axle
✓ Low maintenance costs
✓ New design
✓ Bi-system
✓ Led headlamps
✓ Large cabins

TRANSMONTANA

Bi-system Transmontana authorized in Romania and Hungary. It is equipped with Mirel safety system in standard configuration.
OUR GALLERY
TRANSMONTANA locomotive
Softronic’s newest product, Hyperion, is an electric multiple unit train bi-system capable to operate both 25 kV AC and 3 kV DC.

Hyperion is the first electric low floor train ever built in Romania, aiming to reduce costs and increase efficiency.

The train was built using cutting edge technologies after a 2012 project. In the same time it is based on our previous experience in railway vehicles manufacture and equipped with high quality electrical and mechanical components.

Comfort and safety are key aspects of our train offering open-space compartments, free internet access, diffused lighting systems and comfortable seats. All of these turn short and long journeys into an enjoyable and recreational travelling experience.

The train meets the specific requirements of all European Standards (EN and UIC) and the technical specifications for interoperability (TSIs) and is registered at the 2014 ERA (European Railway Agency) database.
TECHNICAL DATA

Hyperion Motor Bogie

- ABB 430 kW traction motors
- Knorr Bremse Braking system
- Voith Turbo Gearbox

EMU layout

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catenary supply voltage</td>
<td>25 kV - 50 Hz AC / 3 kV DC</td>
</tr>
<tr>
<td>Axle arrangement</td>
<td>Bo’2’2’2’Bo’</td>
</tr>
<tr>
<td>Number of vehicles</td>
<td>4</td>
</tr>
<tr>
<td>Seating capacity</td>
<td>188</td>
</tr>
<tr>
<td>Standing capacity (4 ppl/m²)</td>
<td>215/225</td>
</tr>
<tr>
<td>Floor height</td>
<td>600 mm</td>
</tr>
<tr>
<td>Entrance doors</td>
<td>1300 mm</td>
</tr>
<tr>
<td>Number of entrances</td>
<td>1 entrance per car side (8 doors total)</td>
</tr>
<tr>
<td>Overall length</td>
<td>69 935 mm</td>
</tr>
<tr>
<td>Vehicle height</td>
<td>4230</td>
</tr>
<tr>
<td>Tare weight</td>
<td>134.6 t</td>
</tr>
<tr>
<td>Maximum acceleration</td>
<td>0.85 m/s²</td>
</tr>
</tbody>
</table>
CONCLUSIONS

MAIN FEATURES

- Regenerative braking
- Light weight steel construction
- Carefully designed aerodynamics
- Low maintenance costs
- New design
- Bi-system
- Led headlights
- Seat number optimized

HYPERION

Bi-system Electric Multiple Unit
First electric low floor train ever built in Romania
Competitive Price
HYPERION GALLERY
VEHICLE MONITORIZATION AND DIAGNOSIS BY GSM

Quick access to 5 depots in Romania and one in Hungary (Budapest end of 2014)

24/7 Supervision and tracking of locomotives

Mobile service specialists based in Romania

Preassembled spares and wear parts for periodic maintenance minimizing downtimes

Maintenance concepts and documentation

Short delivery for spare parts

Softronic’s advanced monitorizing programe using GPRS

1. TM 001 CFR
2. TM 002 MMV
3. TM 003 DB
4. TM 004 DB
5. TM 005 DB
6. TM 006 DB
7. TM 007 MMV
8. TM 008 DB
9. TM 009 DB
10. TM 010 DB
11. TM 011 ST
12. TM 012 DB
13. TM 013 DB
14. TM 014 DB
15. TM 015 ST
16. TM 016 ST

1. PH 001 DB
2. PH 002 MMV
3. PH 003 DB
4. PH 004 CFR
5. PH 005 CFR
6. PH 006 DB

TM - Transmontana
PH - Phoenix
SOFTRONIC’S TARGETS

- Delivering strong and reliable locomotives capable to in between Austria, Hungary, Romania, Bulgaria and Turkey
- Entering the swedish market with new locomotives
- Developing the freight traffic in the space of 15 kV 16,7 Hz (Austria)
- Extending our product range with the DMU on the same basis as the EMU
- Opening a new depot in Budapest for locomotive maintenance and upgrades
- Building a new plant in Turkey in collaboration with a turkish partner
QUALITY CERTIFICATES

1. Locomotive commissioning authorization
2. Locomotive certification
3. EMU commissioning authorization
4. EMU certification
5. Mechanical processing certificate according to EN ISO 3834-2
6. Quality management systems certificate according to SR EN ISO 9001
7. Safety management systems certificate according to SR OHSAS 18 001
8. Environmental management system certificate according to SR EN 14001
CONTACT US

**Softronic Ltd.**  
Electric Multiple Units and Locomotives  
Address  
40 Calea Severinului st., Craiova  
Dolj County, Romania  
Phone  
+40 351 40 91 51; +40 351 40 91 52  
Email  
softronic@softronic.ro  
Web  
www.softronic.ro

**Softrans Ltd.**  
Railway freight and passenger transport  
Address  
40 Calea Severinului st., Craiova  
Dolj County, Romania  
Phone  
+40 351 40 91 51; +40 351 40 91 52  
Email  
softronic@softronic.ro  
Web  
www.softrans.ro