



CORPORATE PRESENTATION



TRADITION THROUGH THE HISTORY, KNOWLEDGE FOR THE FUTURE

1894.

Tradition

Knowledge
Quality

2018.

Products/
Services



TOPICS

PRESENT:
Brief introduction

HISTORY:
Development

FUTURE:
Priorities

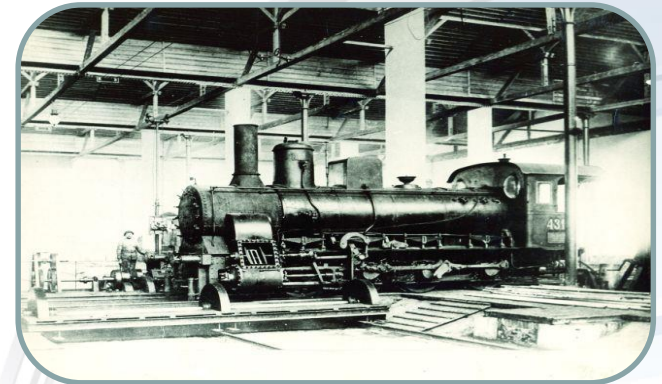


- **Products and services in detail**



About us: RESOURCES & FACTS

- founded **124 years** ago as the main workshop of Hungarian State Railways
- highly competent and motivated **employees** are the most important asset
- aspiring to become **regional leader in SE Europe**



About us: PRODUCTS AND SERVICES

DESIGNING AND PRODUCTION:

coaches, trams, multiple units, locomotives, freight wagons, bogies, pressure vessels, screw jacks, parts for rolling stock

MODERNIZATION, RECONFIGURATION, REPAIR AND MAINTENANCE:

diesel and electric locomotives, diesel and electric railcars, passenger and service coaches, mail vans, freight & heavy motor cars, brake equipments, pressure vessels, screw jacks, tram vehicles...

OTHER SERVICES:

Welding, cutting, punching, machining, material testing, interior parts production...



About us: QUALITY SYSTEM

2000. - ISO 9001
International Quality System

2005. - ISO 14001
Environment Management System

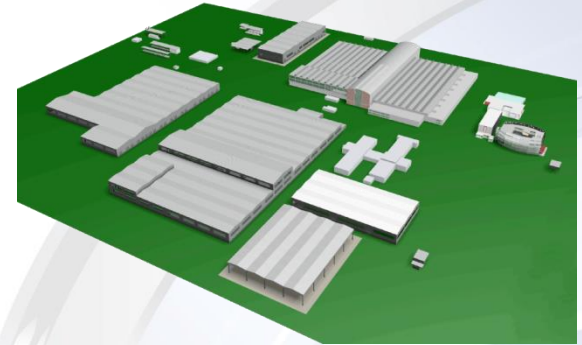


In 2017. company is recertified according to both systems

About us: **FACILITIES**

EXISTING LOCATION - ZAGREB, CROATIA:

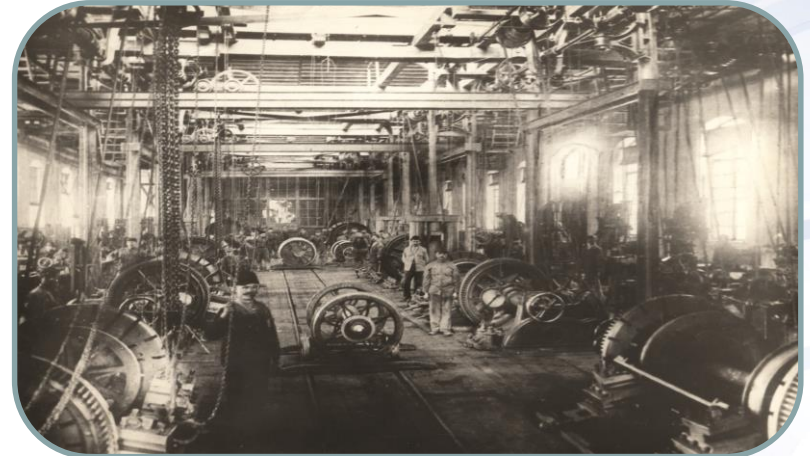
- area of 350.000 m² (80.000 m² covered)
- more than 10.000 m of rail gauges



Development: PRODUCTS AND SERVICES

19. century

Official **OPENING** of the main workshop for the Hungarian state railways for repair and general overhaul of steam locomotives



Development: PRODUCTS AND SERVICES

21. century

DIESEL-MOTOR MULTIPLE UNIT LOW FLOOR TRAIN

for suburban and regional transport



Development: PRODUCTS AND SERVICES



1894 1949 1954 1980 1990 2000 2010 2016



KEY PROJECTS

MULTIPLE UNITS

- Rich history of multiple units **production**:
 - in 1961. the first aluminum train was designed and produced in Gredeļj)
 - recently new low-floor suburban DMU with modular design and possibility of use in local, nacional and international transport
- Numerous projects of **modernization and reconstruction** of EMU's and DMU's (for Croatian Railways as well as for other customers)
- **Maintenance** of EMU's and DMU's according to traffic regulations



LOCOMOTIVES

- more than 15.000 repaired locomotives of different series
- capabilities and specialization demonstrated in the program of diesel and electric locomotives, as well as industrial locomotives
- realization of projects for foreign and domestic partners (the most significant are listed afterwards)



LOCOMOTIVES – MAIN LINE

DIESEL-ELECTRIC LOCOMOTIVE EMD G16 into JT38,
Kosovo State Railways - cooperation with US OEM Electro Motive Diesels - EMD.



COMPLETE RECONSTRUCTION AND RECONFIGURATION at the level of
NEW LOCOMOTIVE - only bogies are original (refurbished)

2 CABINS instead of one, new (model of) ENGINE, microprocessor controlled operation, main and auxillary generator, cooling system, body & locomotive frame, etc.



LOCOMOTIVES MAIN LINE

**MODERNIZATION OF DIESEL-ELECTRIC LOCOMOTIVES SERIES GT26CW / G26 / G16
for National Railway Equipment Company (NRE), USA**



**MODERNIZATION AND GENERAL OVERHAUL OF
ALL MAIN ASSEMBLIES: DIESEL ENGINES, BOGIES, ALTERNATORS,
COMPRESSORS, ETC.**

- New locomotive construction
- Sand blasting, painting and labeling
- New high and low voltage instalations, water, air and fuel instalations

Locos are presently operating in Morrocco, Guinea, Saudi Arabia, Mozambique, Sierra Leone, Argentina, Ivory Coast, Israel



ARGENTINA



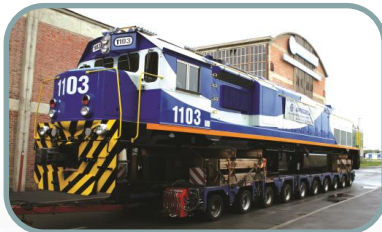
GUINEA



MOZAMBIQUE



SAUDI ARABIA



SIERRA LEONE



SAUDI ARABIA



MOZAMBIQUE



MOROCCO



IVORY COAST



ISRAEL

LOCOMOTIVES - SHUNTING

DIESEL-HYDRAULIC & DIESEL-ELECTRIC SHUNTING LOCOMOTIVES of different types

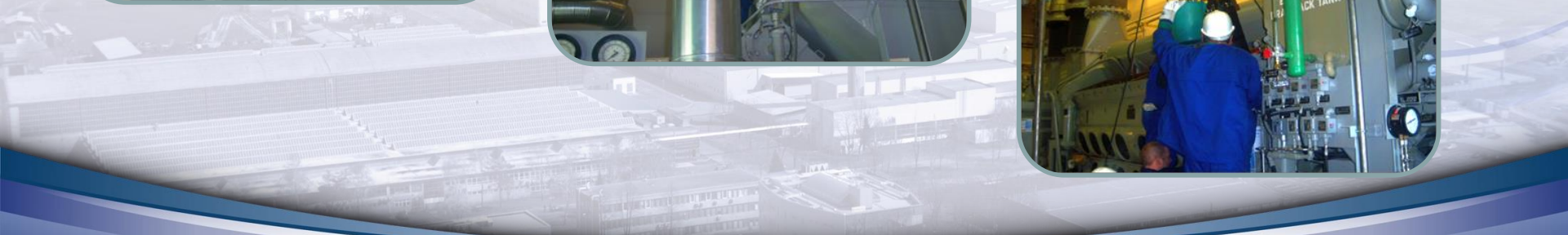
COMPLETE MODERNIZATION AND REMOTORIZATION of old *Croatian Railways* locos

- **only frame and bogies are original (ALMOST NEW LOCOMOTIVE)**
- lower noise level, fuel consumption and gas emission
- much lower maintenance cost and higher safety and reliability
- in some cases processor and managing system are developed and produced in Gredelj with integrated control, managing and safety systems



NUCLEAR PLANT KRŠKO, SLOVENIA

- Gredelj is the **ONLY** railway factory in Europe which is the official maintainer of a nuclear plant
- For more than 20 years Gredelj is generally overhauling, maintaining and controlling safety diesel engines and generators
- Diesel engines, generators and other assemblies are used for cooling of the nuclear reactors



COACHES & WAGONS

- **until World War II**, Gredelj was only repairing and maintaining rolling stock
- **in 1952** first domestic sleeping coach is designed and produced in Gredelj
- **in 1954** new mail coach is constructed and produced, followed by hundreds of these coaches of different types for domestic and international market
- **from 1990's until today** activities in fields of designing and production of coaches are intensified and numerous projects have been realized



PASSENGER COACHES FOR MONTENEGRO RAILWAYS 160km/h (1st and 2nd class) - General overhaul with modernization

- New windows with IZO glass, new interior lighting in LED technique
- New exterior design in accordance with customer's visual identity
- New A/C, static converter, vacuum toilet



PUSH-PULL & Bn COACH for Italian market

Complete reconstruction and modification for push-pull system



MODERNIZATION PROJECTS for Croatian Railways (HŽ)

At FIRST CLASS PASSENGER COACH – 160km/h



Bee 2nd CLASS PASSENGER COACH with compartments – 160km/h



DINING CAR – WR COACH



COUCHETTE COACH



SLEEPING CAR – WL COACH



TRAMS

- until 1990's mainly specialized in overhauling trams
- in 1994 as part of a consortium it took part in the production of a two-joint TMK 2100 tram
- production of low floor tram TMK 2200 within the Crotram consortium for production (more than 140 sets are in use in Zagreb)



ASSEMBLIES

BOGIES Y25

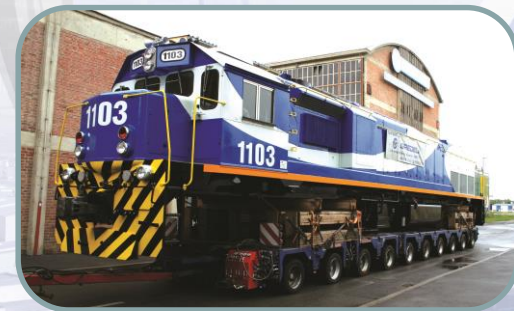
- 100 km/h and 22,5 t capacity per axle (standard “S”)
- 120 km/h and 20,0 t capacity per axle (standard “SS”)



BOGIE FRAMES (for EMD, USA; Legios etc.)



MAIN FRAMES FOR LOCOMOTIVES SERIES GT26



MARKETS

CROATIAN STATE RAILWAYS (about 60%)

AUSTRIA - manufacturing of bogies Y 25

CZECH REPUBLIC - production of official coaches, modernization of cargo coaches

HUNGARY - modernization of passenger coaches

ITALY - reconstruction and modernization of diesel-hydraulic, diesel-electric and electro locomotives, passenger coaches

NORWAY, ENGLAND - manufacturing of bogies Y 25 for cargo coaches

ROMANIA - production of bodies of electro-locomotives, bogies Y 25

SCOTLAND - reconstruction and modernization of diesel electric locomotives (Turner)

SWEDEN - manufacturing of equipments for trains

SWITZERLAND - production of bogies Y 25



REPUBLICS OF FORMER YUGOSLAVIA -
reparation of coaches, diesel- hydraulic and
electro-locomotives

MARKETS

USA - reconstruction and modernization of diesel electric locomotives (NREC)

ARGENTINA – reconstruction and modernization of G26 locomotives

GUINEA - reconstruction and modernization of diesel electric locomotives series G16 into G26

ISRAEL - reconstruction and modernization of diesel electric locomotives GT26CW

IVORY COAST - reconstruction and modernization of diesel electric locomotives GT26CU

MORROCCO – production of NGT26 locomotives

MOZAMBIQUE – reconstruction and modernization of diesel-electric locomotives series GT26

SAUDI ARABIA - reconstruction and modernization of diesel-electric locomotives series GT26

SIERRA LEONE - reconstruction and modernization of diesel-electric locomotives series GT26



PRIORITIES

- **new markets** with local **partnerships**
- **modernization** and new **technologies**
- **new products** and **services**



OUR STRENGTHS

- high level of **technical capability**
- products and services **quality and variety**
- **customization flexibility** toward customer needs and preferences (design, components origin or reuse...)
 - can accept **projects** that other consider too **small**, as a result of our history and step by step growth
 - capacity to take **larger orders** (recent investments in facilities and equipment)



PRODUCTS

TRAINS



LOCOMOTIVES



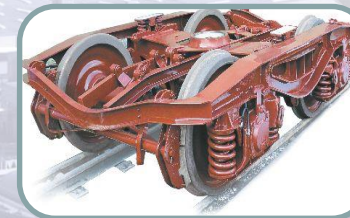
**COACHES &
WAGONS**



TRAMS



ASSEMBLIES



Thank you for your time and attention!



www.tzv-gredelj.hr