

DIZEL-ELEKTRIČNE LOKOMOTIVE ZA VUČU VLAKOVA TIPA G26 (2062)

MAINLINE DIESEL-ELECTRIC LOCOMOTIVES TYPE G26

Zajedničkom dugogodišnjom suradnjom TŽV Gredelj i National Railway Equipment Company (NRE), iz SAD-a, proizveden, rekonstruiran i/ili moderniziran je veći broj dizel-električnih lokomotiva, tip GT26, G26 i G16. Lokomotive su prilagođene specifičnim zahtjevima tržišta na koja se isporučuju.

Long-term joint cooperation of TZV Gredelj and the National Railway Equipment Company (NRE), from the USA, has resulted in production, reconstruction and/or modernization of a number of diesel electric locomotives, type GT26, G26 and G16. Locomotives are tailored to the specific requirements of the markets to which they are being delivered.



MODERNIZACIJA, REKONSTRUKCIJA I PROIZVODNJA LOKOMOTIVA SERIJE G26 (2062)

Lokomotiva G26 je namijenjena vuči teretnih vlakova i odlikuje se relativno malom masom i osovinskim pritiskom te velikom vučnom silom u pokretanju.

Modernizacijom lokomotiva su povećane raspoloživost i pouzdanost lokomotiva, a broj kvarova i imobilizacija lokomotiva svedeni su na najmanju moguću mjeru. Zahvati modernizacije, na pogonskim sklopovima, sigurnosnim komponentama i pomoćnim pogonima osiguravaju raspoloživost lokomotiva u eksploataciji iznad 90%.

Radni učinak, tj. radijus djelovanja lokomotive u eksploataciji značajno je povećan ugradnjom spremnika goriva većeg volumena (oko +25%).

Upravljački sustav lokomotive je NRE lokomotivski digitalni računalni sustav – NFORCE koji osigurava upravljanje lokomotivom i nadzor pogonskih sustava.

NFORCE računalo je ugrađeno na više tisuća lokomotiva na različitim svjetskim tržištima.

Prilikom rekonstrukcije i modernizacije ovih lokomotiva, izvedeni su sljedeći zahvati:

- Ugrađen je mikroprocesorski sustav upravljanja tvrtke NRE – NFORCE koji nadzire sve procese na lokomotivi (glavni i pomoćne pogone)
- Sigurnosni sustavi (prema lokalnim propisima: Autostop sustav –RAS8385, digitalni snimač podataka IRAS19 i uređaj budnosti u skladu s UIC propisima – proizvođača ALTPRO)
- Glavni alternator AR10 i pomoćni alternator D14
- 16-cilindrični dvotaktni dizelski motor s prednabijanjem (Root puhalo) i direktnim ubrizgavanjem goriva tip EMD 16-645
- Novi spremnik goriva povećanog kapaciteta (6000 Litara)
- Kompresor zraka WBO - tip 8103 sa novim sustavom podmazivanja i elektroničkom zaštitom
- Eko sustav drenaže (spremnik otpadnih tekućina iz motornog prostora)
- Nova visokonaponska i niskonaponska električna instalacija
- Nova instalacija dobave goriva
- Nova instalacija zraka (kočnice)
- Nova instalacija rashladnog sustava
- Modernizirana upravljačnica i povećan komfor strojnog osoblja
- Novi pomoćni alternator D14 osigurava napajanje dva električna ventilatora za hlađenje dizelskog motora i jednog ventilatora za hlađenje vučnih motora (Končar)
- Ugrađen sustav daljinske komande (do 5 lokomotiva u spregnutom upravljanju) prema AAR standardu
- Nova rasvjeta prilagođena lokalnim propisima (signalna rasvjeta u LED tehnologiji i duga bijela svjetla u halogenoj tehnologiji)
- Radio uređaji prilagođeni lokalnim propisima
- Low Idle funkcija

Nakon modernizacije, snaga raspoloživa za vuču je 2000 HP dok je glavni alternator AR10/D14 upravljan mikroprocesorom.

MODERNIZATION, RECONSTRUCTION AND PRODUCTION OF LOCOMOTIVES SERIES G26

Locomotive G26 is intended for freight traffic and its specifics are relatively low mass and axle load while preserving high traction effort on starting the train.

By modernizing locomotives their reliability and availability is increased while number of malfunctions and immobilizations of the units is reduced to the lowest possible level.

Scope of modernization on main drive components, safety systems and auxiliary drives secure locomotive exploitation availability above 90%.

Locomotive radius of operation is increased significantly by increasing fuel tank capacity (around +25%).

Locomotive control system is NRE's - NFORCE computer that controls locomotive and drive systems.

NFORCE computer is installed on several thousands of locomotives used on different world markets.

Reconstruction and modernization of these locomotives included:

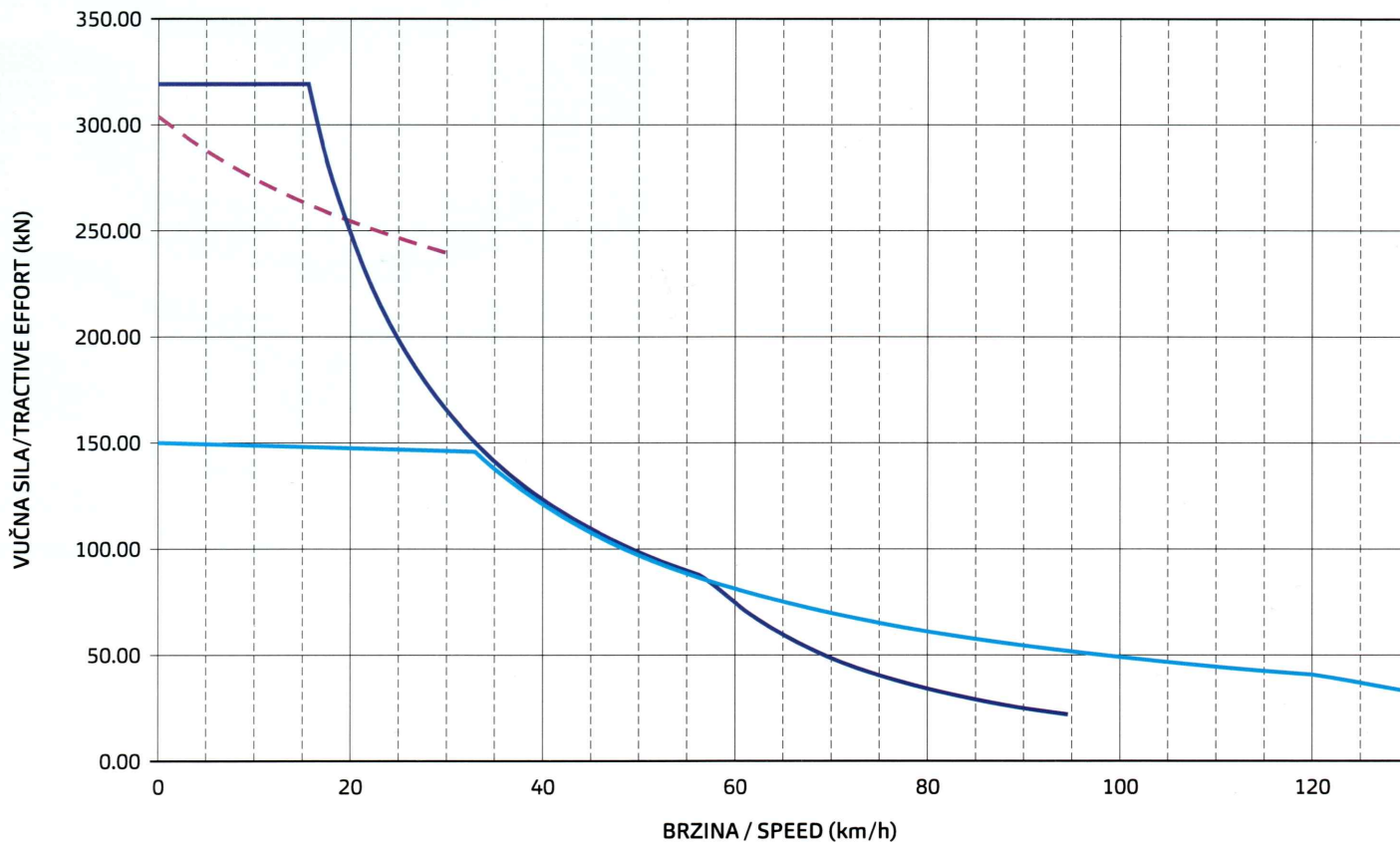
- Implementation of microprocessor control system from NRE – NFORCE for monitoring all processes on the locomotive (main and auxiliary systems)
- Safety systems (according to local regulations: Indusi system – RAS8385, digital data recorder IRAS19, speedometer and UIC compliant alerter – all products from company ALTPRO)
- Main alternator AR10 and auxiliary alternator D14
- 16 cylinder two stroke diesel engine with Root blowers and direct injection, type EMD 16-645
- Increased fuel tank capacity (6000 Liters)
- Main air compressor with three cylinders produced by WBO, type 8103 with new lubrication system and electronic protection
- Eco drainage system (reservoir for waste fluids from the engine room)
- New high and low voltage electrical installation
- New fuel supply piping
- New air brake piping
- New engine cooling system installation
- Modernized cab with improved cab comfort
- New D14 auxiliary alternator supplies two electrically driven fans for diesel engine coolant cooling and one traction motor blower (Končar)
- Installed MU control system (up to 5 locomotives in MU) according to AAR standards
- New lights according to local regulations (signal lights in LED technology and bright white lights in halogen technology)
- Radio devices according to local regulations
- Low idle function

After modernization, traction power is 2000HP while main alternator AR10/D14 is microprocessor controlled.

TEHNIČKE KARAKTERISTIKE / TECHNICAL SPECIFICATIONS

Model lokomotive / Locomotive model			2062
Izvorni proizvođač / Original manufacturer			EMD
Rekonstruirana / Reconstructed by			NREC / TZV GREDELJ
Godina rekonstrukcije / Reconstruction year			2019.
Poredak osovina / Axle arrangement			Co'Co'
Širina kolosijeka / Track gauge width		mm	1435
Promjer kotača (novih) / Wheel diameter (new)		mm	1019/1027
Masa lokomotive / Locomotive weight		t	103
Osovinsko opterećenje / Axle load		t	17
Kinematički profil / Kinematic profile			UIC505-1
Dužina (preko odbojnika) / Length over buffers		mm	16984
Širina (preko rukohvata) / Width over handrails		mm	3095
Visina (preko najviše točke lokomotive) / Height (highest point)		mm	4200
Brzina / Speed	Minimalna trajna / Minimum continuous	km/h	22
	Maksimalna / Maximum	km/h	124
Instalirana snaga / Installed power		kW	1640
Snaga za vuču / Traction power		kW	1400
Dizelski motor / Diesel engine	Tip / Type		16-645E roots blown
	Broj okretaja u praznom hodu / Idle engine speed	rpm	314
	Maksimalni broj okretaja / Maximum engine speed	rpm	900
Filtriranje zraka / Air filtering			Filteri na oplati i filteri motora / Air filters on the hood and engine air filters
Glavni alternator / Main alternator	Tip / Type		AR-10
	Maksimalni napon / Max. Voltage	Vdc	1230
	Trajna struja / Cont. current	Adc	4200
Pomoćni alternator / Auxiliary alternator	Tip / Type		D14
	Maksimalni napon / Max. voltage	Vac	215
	Frekvencija (na 900 rpm) / Frequency (at 900rpm)	Hz	120
Pomoćni generator / Auxiliary generator	Tip / Type		A8102-A3
	Napon / Voltage	Vdc	74
	Snaga / Power	kW	18
Vučni motori / Traction motors	Tip / Type		D77B
	Snaga / Power	kW	425
	Ovjes / Support bearings		Osovinski klizni / Axle support bearings
Broj vučnih motora / Number of traction motors			6
Lokomotivski upravljački sustav / Locomotive control system			N-Force računalo / N-Force computer
Sigurnosni sustavi / Safety systems			RAS8385
			IRAS
			UIC641
Višestruko upravljanje / MU operation			Električno / Electrical
Kompresor za zrak / Air compressor	Tip / Type		Westinghouse WBO
	Hlađenje / Cooling		Vodeno / Water
	Kapacitet / Capacity	m ³	7,19
Kočnica / Brake system	Tip / Type		26L
	Sušač / Air dryer		Salem 975-100
	Glavni spremnici zraka / Main air reservoirs	l	2 x 426
Vlačna i odbojna sprema / Hook and buffers			Vijčano kvačilo i odbojnici / Hook with screw and buffers
Baterije / Batteries	Tip i broj ćelija / Type and cell number		Olovne, 32 ćelije / Lead acide, 32 cells
	Nazivni napon / Nominal voltage		64
	Kapacitet / Capacity		450

Vučne karakteristike/Tractive effort curve



MODERNIZACIJA I REKONSTRUKCIJA LOKOMOTIVA SERIJE G26CW/G16CW U G26 (za uski, standardni ili široki kolosijek)

MODERNIZATION AND RECONSTRUCTION OF LOCOMOTIVES SERIES G26CW/G16CW INTO G26 (for narrow, standard or broad gauge)



Na sličan način, nekoliko drugačijih modela lokomotiva je razvijeno i isporučeno raznim korisnicima. Svaki model se donekle razlikuje u detaljima ovisno o lokalnim propisima i drugačijim sigurnosnim uređajima dok su osnovne karakteristike lokomotiva iste. Također postoje i modeli lokomotiva G26 s vakuumskom kočnicom.

In similar manner, several other models were developed and delivered to the various customers. Each model is slightly different due to local regulations and different safety systems while basic characteristics stay the same. There are also G26 models that have vacuum brake installed.

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