SIEMENS

Light rail vehicle for the Société du Métro Léger de Tunis (SMLT)

Technical Information

Complete three-section bidirectional light rail vehicles in accordance with the specifications of the SMLT transit authority supplied by Siemens Verkehrstechnik and DUEWAG AG.

Type of construction:	Bidirectional articulated vehicle, welded steel lightweight construction
Type of running gear:	2 powered and 2 non-powered bogies with welded hollow members
Wheel arrangement:	Bx'2'2'By'
Largest trainset formation:	2 light rail vehicles or (Bx'2'2'By') + (Bx'2'2'By')
Boarding and alighting arrangements for:	low (180 mm) as well as high (900 mm) platforms
Traction power supply:	750 V DC (+20%, –30%)
Traction motor:	240 kW DC motor (hourly rate) per powered bogie
Power controller:	2 DC choppers for driving and electrical braking or regenerative braking with common network filter per vehicle
Braking system:	Combined electro-pneumatic for the powered bogies and pneumatic for the non-powered bogies, stored spring brake per powered bogie as well as eight magnetic track brakes
Compressor output:	700 l/min
Compressed-air control for:	Passenger saloon doors, folding steps, couplers, sanders, windshield defrosters, external mirrors
Minimum curve radius:	20 m (17.5 m unloaded)

Integrated in Siemens Transportation Systems:

DUEWAG
ALEX. FRIEDMANN
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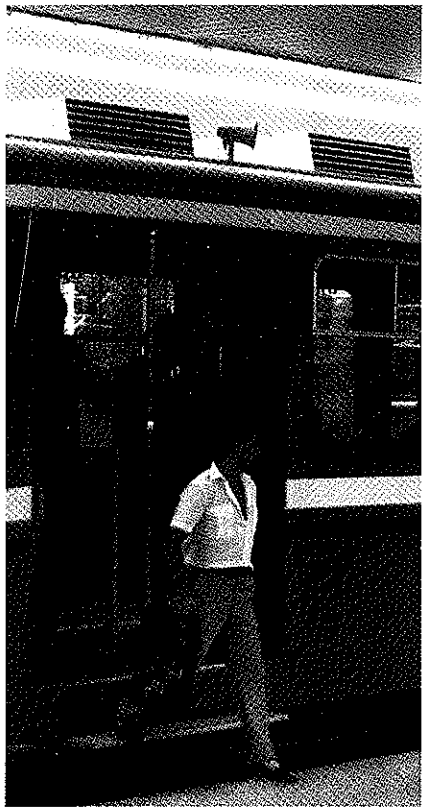
SFT SGP

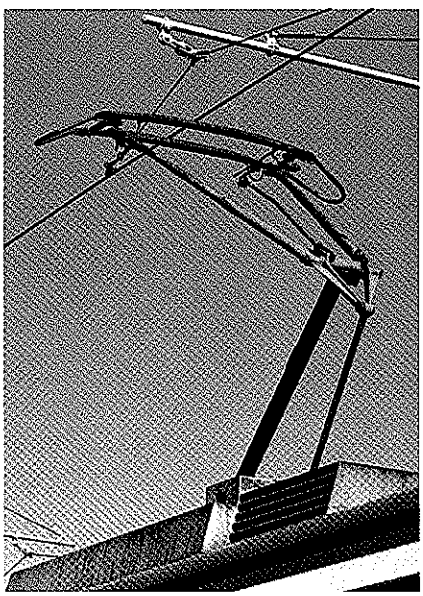
DUEWAG-folding doors

The hot-extruded folding doors made of glass-fiber reinforced plastic have large-area glazing, safety bars and door-nip protection profiles. The pneumatic door drives positioned above the doors are operated by the driver.



Steps

The Tunis light rail vehicles are equipped with folding steps so as to be suitable for both high and low platforms.



Pantograph

Nominal voltage	800 V
Maximum current	1100 A
Effective current	800 A
Contact pressure	70 N
Weight	125 kg

Standardized quality

A quality system in accordance with DIN ISO 9001 is used for all products of Siemens Transportation Systems.

E Net

CERTIFIED DIN ISO 9001 LQP QUALITY SYSTEM

Reg.-No.: 2233-01

Siemens AG
Transportation System Group
Mass Transit Rolling Stock
P.O. Box 3240
91050 Erlangen
Phone (++91 31) 7-25176
Fax (++91 31) 7-20505

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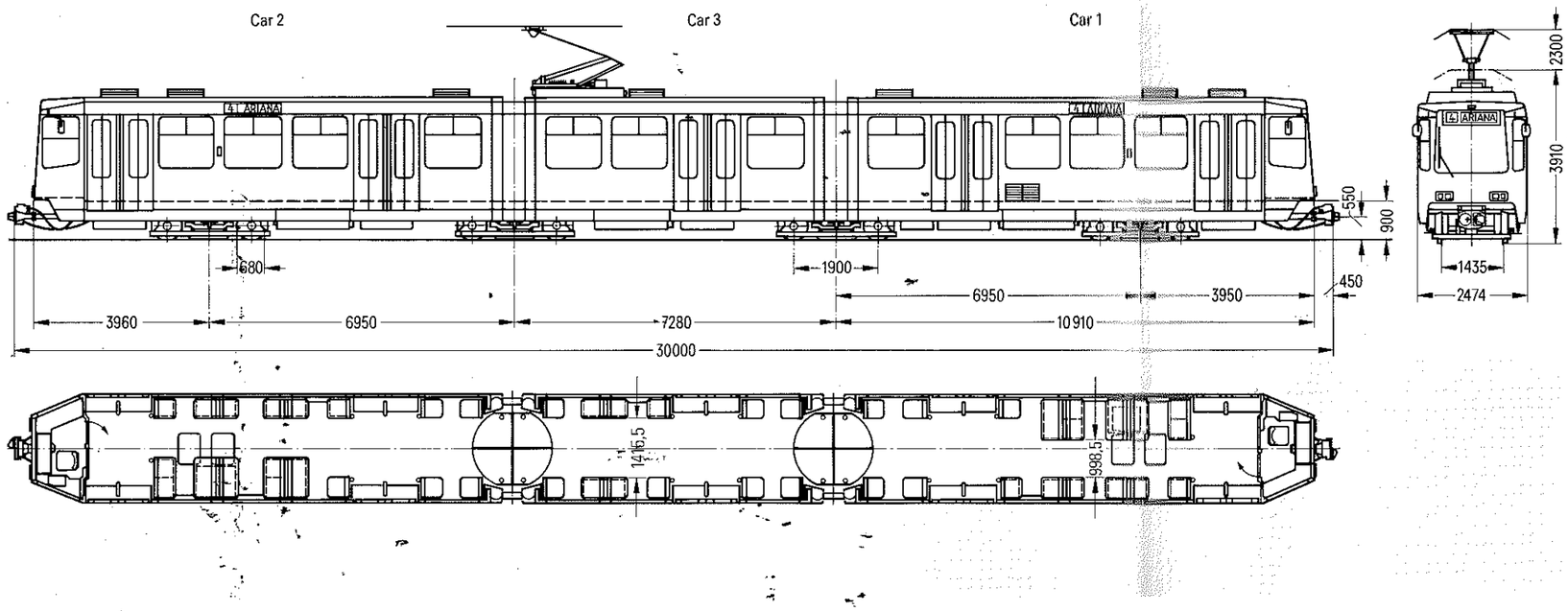


Tare weight	40 t
Adhesive weight	Approx. 60 %
Seats	21 + 12 + 21 = 54 +2 (in the driver's cabs)
Standing room (6 persons/m²)	235
Step heights of the folding steps from low platforms of 180 mm to the carriage floor height of 900 mm	180 mm + 267 mm + 236 mm + 217 mm = 900 mm
Maximum vehicle speed	70 km/h
Starting acceleration	1.1 m/s² from 0 - 40 km/h (empty)
Braking deceleration at max. speed	1.3 m/s²
Emergency braking deceleration	2.8 m/s² from 40 - 0 km/h

Light rail vehicle

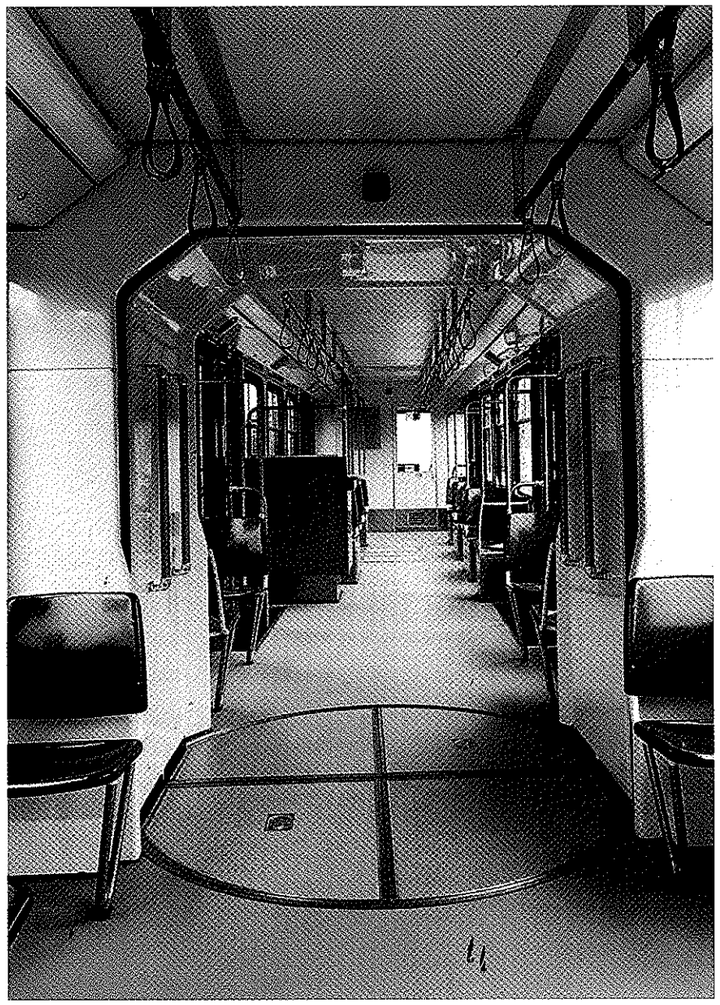
The Tunis light rail vehicle is a bidirectional articulated vehicle for town and suburban traffic. It belongs to a series of vehicles which allows numerous options on the basis of the same basic concept and which has proven itself in daily service in many railway administrations in Germany and abroad.

Car body

The car body is manufactured as a welded, steel, lightweight unit, consisting of rolled-steel, edge and hollow sections, with the metal sheeting welded directly to the body frame. As a supporting tube the straight lines of the body shell offer a maximum of safety for the passengers and traffic participants.

Articulation section

The proven DUEWAG articulation sections with ball race rings and „silentbloc" bearings fulfil all the mobility requirements of the vehicle. The rubber bellows are covered on the interior and exterior. The interior covering with large-area plastic panels offers the passengers safety and reduces the noise level.



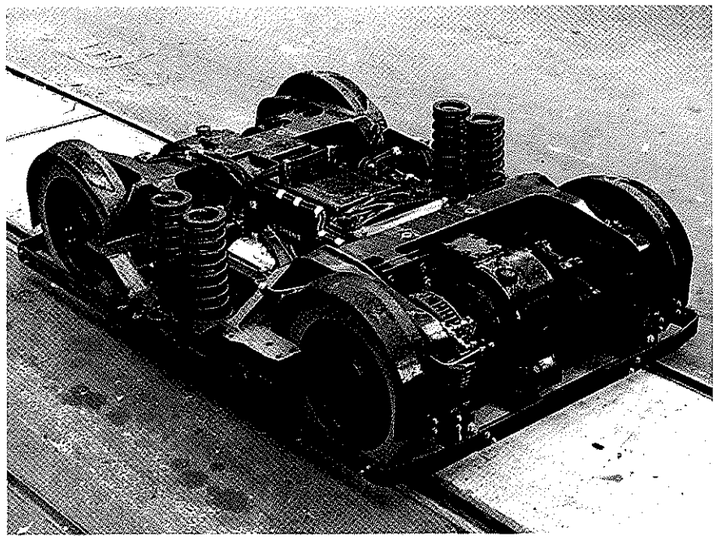
Running gear and suspensions

The bogie frame is a welded hollow-member unit. The inner box wheelsets with wheels having resilient rubber inserts and double helical springs as secondary suspension with dampers positioned in parallel ensure a high degree of travel comfort. The connection to the car body is effected by means of ball race rings, ring roller bearings, resilient-rubber longitudinal steering and limitation elements.

Every powered bogie has a longitudinal motor which is connected to two quillshaft wheelset gearboxes. These units are suspended elastically in the bogie frame by means of four rubber elements. The force is transmitted to the wheelset axles by means of guide couplings.

Every wheelset axle is equipped with disk brakes, which are activated by means of air brake units with supplementary stored-spring brakes. Further bogie components are magnetic track brakes with sprung suspension, slip/slide protection, wheel guards and guard irons.

The design of the nonpowered bogies under the articulation points corresponds to a large extent to that of the powered bogies.



Running gear	Monomotor powered bogie with DUEWAG drive suspended in the bogie frame or non-powered bogie in adapted design with driving parts, without spring accumulator
Gearbox	Quill-shaft wheelset gearboxes
Gear ratio	49:9 (5.44:1)
Wheelset arrangement	Bx'2'2'By'
Primary suspension	Rubber-sprung wheelset suspension
Secondary suspension	Double helical-spring suspension with dampers
Wheel diameter	680 mm (new), 600 mm (worn)
Track gauge	1.435 mm