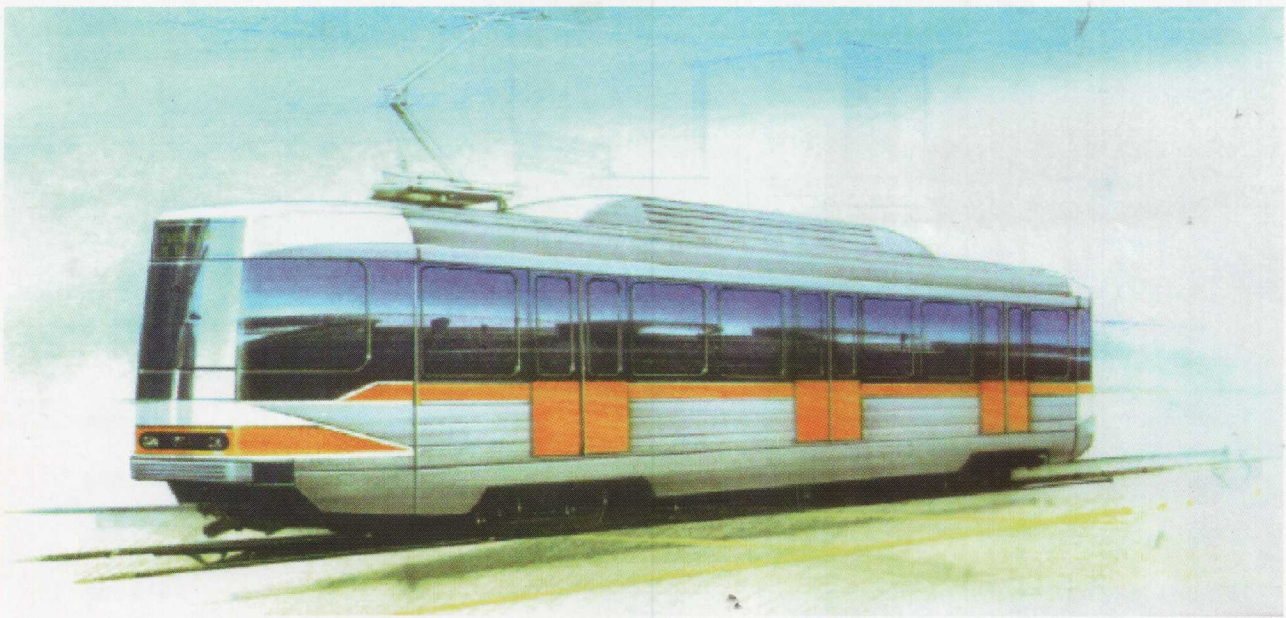
LIGHT RAIL VEHICLES FOR THE KOWLOON CANTON RAILWAY CORPORATION (HONG KONG)



Goninan are contracted to design and build 20 Light Rail Vehicles (LRV) for the KCRC Tuen Mun Light Rail line in Hong Kong.

The vehicles are electrically powered, single cars which operate via an overhead 750 volt d.c. system.

Each vehicle is self contained with a driving cab at one end although they can work in multiple when required. The operating system requires that the vehicles travel in one direction only and passengers board and leave the vehicle through three double sliding doors on one side of the vehicle. The doors supplied by SMC Ltd are bi-parting, externally hung and are installed such that the wide doorway is completely unobstructed by the door leaves when open.

The vehicle structure is stainless steel with extensive use of glass reinforced fibre to form the front and rear canopies and driver's cab. The stainless steel structure is designed and manufactured utilising roll formed and pressed, thin wall sections. The minimum section bodyside corrugations maintain the modern pleasing appearance of the vehicle. The design is verified by extensive use of Finite Element Analysis.

The vehicles are air conditioned by means of a twin system sharing a common ducting which ensures an even air flow and will maintain air conditioning to the driver's cab and saloon in the event of a failure to either unit. The units are supplied by Sigma Ltd.

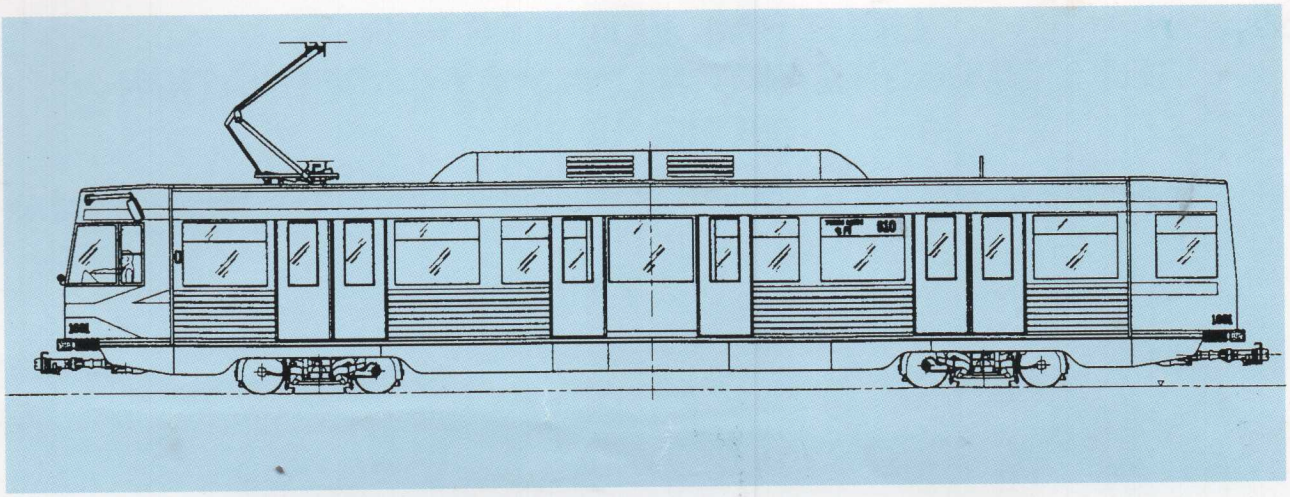
This order forms the third phase of vehicles for the Tuen Mun system and there are many new features which separate these vehicles from the earlier ones.

- Much more extensive front collision structure to afford greatly improved driver safety.
- Three phase ac traction equipment, manufactured by Mitsubishi Ltd.
- Sleek, modern appearance.
- Reduced vehicle weight.
- Increased passenger capacity.
- Enhanced environmental control and hence improved passenger comfort.

As additional vehicles for an existing systems the vehicles are required to be fully compatible in operation with the earlier cars. For that reason the bogies are produced by Siemens Duewag and incorporate track brakes, air bag suspension and slewing ring interface to the vehicle body.

In order to achieve the stringent weight target the vehicle design includes advanced composite materials, forming relatively large modules. Such areas include the cab desk and canopy and the air conditioning duct work.

GONINAN
QUALITY



Length over coupler faces	20 200 mm
Length over carbody	19 400 mm
Width	2 650 mm
Height (top or rail to top of roof)	3 415 mm
Height to top of air-conditioner	3 900 mm
Interior height at centreline of car	2 150 mm
Bogie centre distance	11 000 mm
Floor height (nominal)	960 mm
Clear width of doors - minimum	1 700 mm
Bogie wheelbase	1 900 mm
Wheel diameter new / worn	720 / 660 mm
Minimum running clearance (with fully worn wheels, no shimming)	59 mm
Height of coupler above top of rail	500 mm
Height of bumper centre	847.5 mm
Minimum clearance of coupler on vertical curve	80 mm
Number of passenger doors	3 pairs

GONINAN
QUALITY

A. Goninan & Co Limited
A.C.N. 000 003 136
Broadmeadow Road, Broadmeadow, Newcastle, NSW 2292 Australia
P.O. Box 3300 Hamilton, NSW 2303 Australia
Telephone: (049) 23 5000 • International: 61 49 23 5000
Facsimile: (049) 23 5001 • International: 61 23 5001