



Tramper

Getting people back on track



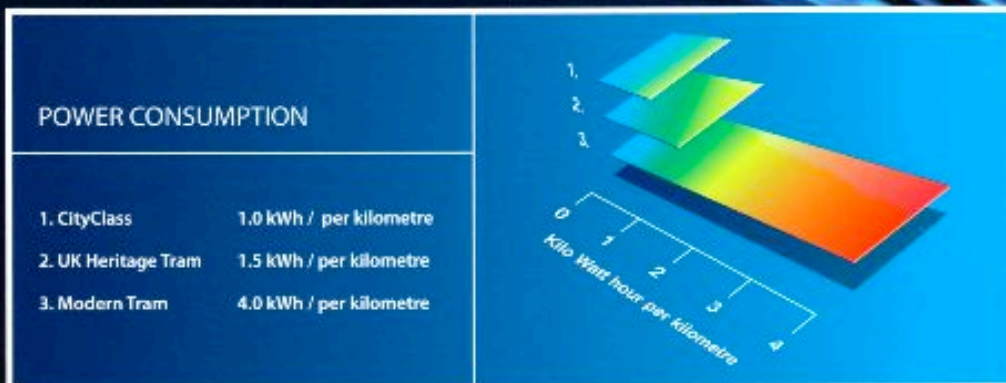


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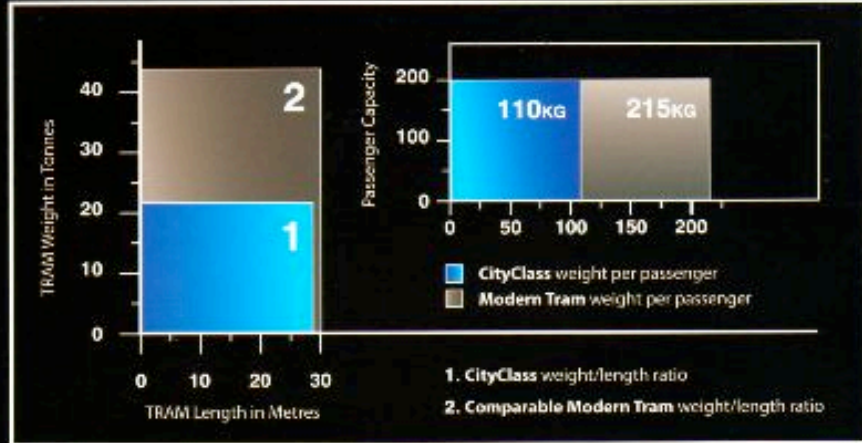
The **CityClass** by Trampower is a revolutionary **Light Rail Vehicle (LRV)**, robustly manufactured to meet the demands of modern city transport requirements, at the same time is sympathetic to the environmental issues facing the transportation industry. The design ethos was to create a dedicated **LRV** from the ground up, as a preference to a scaling down a traditional heavy train technology, the result is a powerful, lightweight, modular machine that can be customized to suit the exacting demands of any specific global region and operator requirements. By exploiting **'Components Off The Shelf (COTS)**, the **CityClass** is constructed utilising state of the art componentry from some of the world's most prestigious technology manufacturers, ensuring optimal specification and product support throughout the life of the vehicle.

CityClass, stylish and sophisticated, represents the future for **LRV**. Utilising a light weight, integral structure, with state of the art interior fixtures and patented **'Direct Drive System' (DDS)**. The **CityClass** offers unparalleled performance for minimal initial investment and continual low operating costs.

BUILDING ENERGY EFFICIENT TRAMS FOR A CLEANER ENVIRONMENT



The above graphic shows the power consumption of 3 typical tram types over a flat mile, highlighting the superior energy efficiency of Trampower using DDS technology.



THE COMPARISON GRAPH SHOWS CITYCLASS WEIGHING 50% LESS THAN A SIMILAR SIZED MODERN TRAM

CITYCLASS KEY FEATURES

The fundamental thinking behind the design of the CityClass is engineered around 'Off the Shelf Components', Reducing the costs and service maintenance in comparison to traditional tram designs.

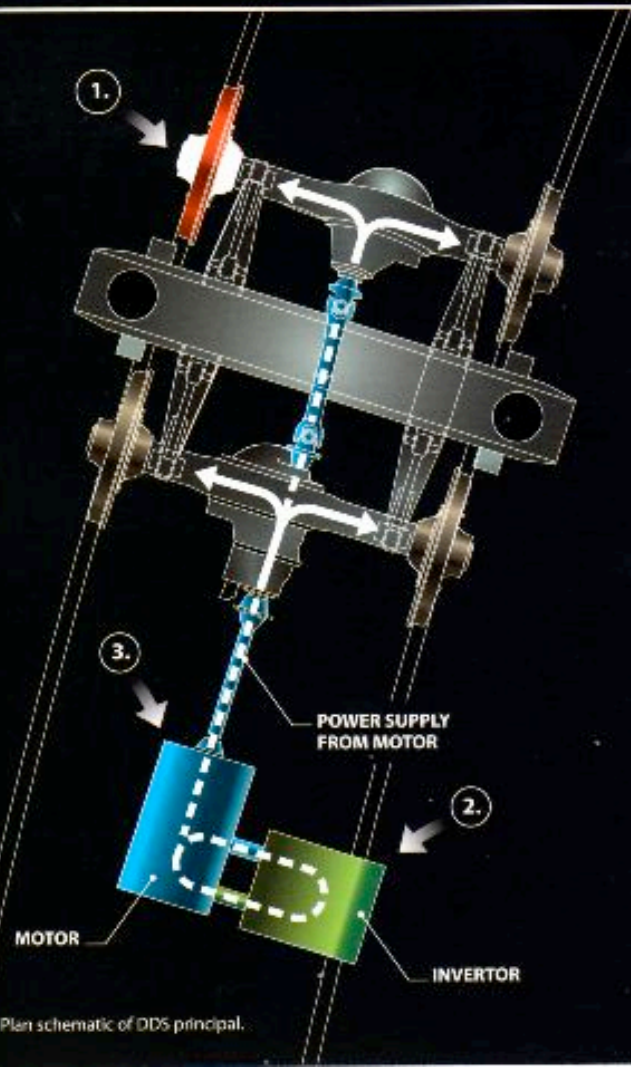
- TramPower bogie (2200 kg / 4840 lb) with low track forces
- All wheels individually rotate - eliminating curve squeal
- High passenger capacity (e.g. 200 in 29m / 95ft articulated vehicle)
- Wheels individually removable for maximum life (>300,000 km / 186,000 miles)
- Integral body fabricated from rustless steel (long life > 30 years)
- Body mounted traction unit - easy maintenance
- Timoshenko crash worthy cab, with driver survival zone
- Easy mid life modification and upgrade
- Low floor (300 mm / 12 in) or high floor (760 mm / 30 in) options
- No equipment inside passenger saloon - full width flat floor
- Ultra comfort resilient wheels

**BRITISH DESIGN AND MANUFACTURE
INCORPORATING A PATENTED DIRECT
DRIVE TECHNOLOGY**

1. Slip or loss of traction caused by varying track conditions is monitored closely at 4000 samples per second.
2. The inverters continuously adjust the power to the motors to maximise available track adhesion, eliminate wheel slip and automatically compensate for different loads from passengers and hills and in turn prevents 'hunting'.
3. Power correction to the wheels stabilises traction, minimising component wear and audible wheel squeal.

* In certain conditions of track and speed, traditional bogies can 'hunt', the uncontrolled oscillation of the bogie.

Bogie hunting is uncomfortable for passengers and can lead to track and wheel damage. The **CityClass** bogie uses **DDS technology** eliminates these problems and increases the life of track and bogies.



Plan schematic of DDS principal.



cityclass >>

- Modular design gives operational flexibility. Standard modules used to suit every system's needs
- Energy efficient electronics for varying loads and track conditions
- High strength and low weight stainless steel integral frame, giving long life and easy maintenance
- Economic build, utilising standard equipment, reduces purchase and running costs and maximises efficiency and reliability
- Certified to EU and UL standards
- Energy efficient using 75% less power than other trams
- Power savings e.g. from 10 years operations, will be about the same as the first cost of the LRV. When powered by renewable generation, there will be zero carbon emissions being environmentally sustainable.





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