CASE STUDY

Passenger Rail Agency of South Africa

X'Trapolis

South Africa's rail operator, Prasa, chose Alstom led consortium, Gibela, for its localization commitment and expertise - to design, manu-facture and supply 3,600 passenger coaches, X'Trapolis Mega, for the country's vast railways renewal. The selection of the most advanced regional transport system is slated to improve safety, comfort, reliability and punctuality for the 2.3 million daily rail commuters across South Africa.

Country..... South Africa

Context..... Johannesburg (provincial capital of Gauteng) is Africa's most prosperous and modern city and represents the largest metropolitan area in South Africa. The Passenger Rail Agency of South Africa, Prasa, will renew its mass transit rapid transport system to reduce traffic congestion in Johannesburg and other major cities and concurrently improve its regional competitiveness and the country's economic development. Over the next 10 years, Prasa will spend an estimated 11.5 billion Euro on extensive capital programs to modernize its aging railway infrastructure. Today, Prasa has a fleet of 4,600 cars, of which many trains are nearly 40 years old.

Solution..... In 2013, Gibela, the Alstom led consortium, was chosen to support Prasa's rolling stock fleet renewal program with its state-of-the art commuter train, the X'trapolis Mega which will ensure high service reliability, comfort and safety for passengers as well as LCC optimization.

- 3,600 vehicles delivered over a 10-year period from 2015 to 2025
- Maintenance technical support and spare parts for 18 years beginning in 2015
- Development of a manufacturing facility in 2014
- 8,088 direct jobs worldwide
- Training of South African design engineers
- Socio-economic development contributions and skill development initiatives

KEY BENEFITS

High capacity & reduced headway
Up to 1200 passengers per train and 3 doors per car to facilitate passenger flows during peak schedules while reducing headway between trains.

Low energy consumption
31% consumption saving thanks to:
IGBT regenerative braking system associated to 66% motorization ratio
Lighter train because of its stainless steel bodyshell

Optimized maintenance cost
Alstom's Traintracer module which generates continuous flow of data on changes on trains' components via radio transmission to a ground-based server - anticipates and troubleshoots problems and failures. This new access to predictive and preventive maintenance significantly raises effective fleet availability and optimizes maintenance cost.

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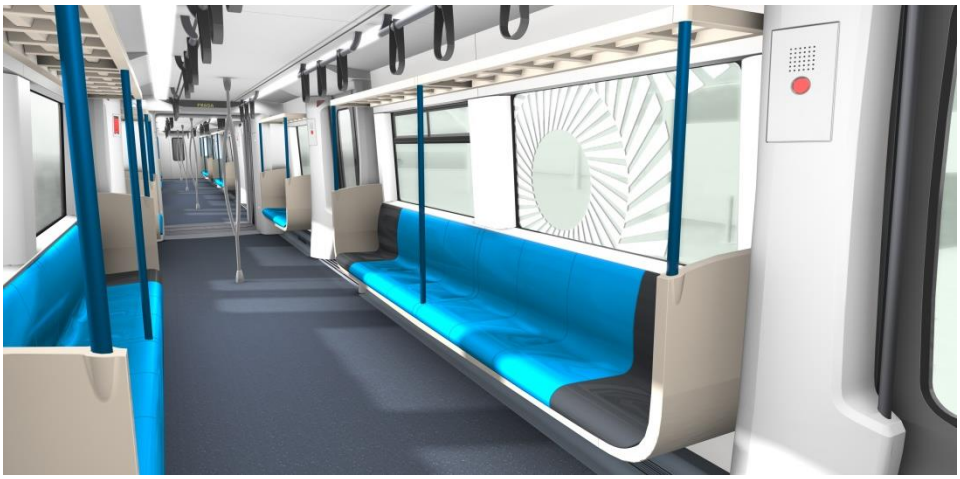
TECHNICAL SCOPE AND KEY FEATURES

Train length (6 car-train)	131.42 m
Vehicle width	2.75 m
Track gauge	1,067 mm
Number of bogies per vehicle	2
Number of car body modules per vehicle	6
Modularity	Design for 4, 5 & 6 car consist, multiple units up to 18 cars
Floor height	1,100 mm
Platform height	860 / 1070 mm
Gangway width	1,350 mm
Number and type of doors per coach	3 double external sliding doors per side
Seating configuration	Modular arrangement (longitudinal or transversal seats)
Passenger Capacity Seated (@6 pax/m2)	From 234 to 380 per vehicle, depending on seat arrangement and on option like toilets
Seated + standing	From 1088 to 1218 per vehicle
Wheelchair	2 per vehicle (compliant TSI-PRM)
Toilet	2 Universal per trainset
Passenger information equipment	Wifi, CCTV, infotainment, Real time ground communication
HVAC (Heating, Ventilation & Air Conditioning)	Independent units and controls for passengers and drivers areas
Signalling System	ERTMS level 2
Motorization ratio	66% (6 cars unit)
Maximum speed in service	120 km/h and with crashworthiness designed for 160km/h
Maximum acceleration	0.85 m/s^2
Compression load	1500 kN
Crash absorption resistance	Meets EN15227 standard
Minimum horizontal curve radius	90 m
Power supply voltage	3kV or 25kV



For more information
please contact Alstom:

Alstom
48, rue Albert Dhalenne
93842 Saint-Ouen, Cedex France

Phone: +33 1 57 06 90 00

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