



MAN Lion's City

Hanover, September 21, 2016

A well-engineered city bus with efficient drives

- **Customized transport solutions to meet urban demands**
- **A wealth of new features for increased efficiency and sustainability. From the start of 2017 also available for use with HVO**
- **MAN's own door system for electrically- and pneumatically-operated external and internal pivoting doors, as well as pivot-sliding doors**

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MAN Truck & Bus has a wide-ranging city bus portfolio that meets the various mobility requirements of different cities. This includes transport capacity features such as vehicle length and vehicle options (number of doors, internal design, low-floor, low-entry) as well as different drive types. Thanks to its capability of running almost all Lion's City models on biodiesel and, from January and/or April 2017 also with HVO (hydrotreated vegetable oil), MAN can now provide a full product range with alternative drive systems alongside the tried-and-tested Lion's City Hybrid. This is complemented by a wide range of CNG-powered buses capable of running on biogas. MAN is the field's market leader for natural gas drive technology, having sold over 8,000 units since 2,000 (buses, chassis, engines). Overall, this represents a wide range of mature, sustainable and CO₂-efficient technologies that are also economical and forward-looking.

MAN city buses – consistently efficient

MAN's unwavering commitment to the continued development of its products is clearly reflected in the evolution of the MAN Lion's City city bus. Over the past three years, the MAN Lion's City has been consistently optimised in order to offer customers top quality and maximum benefit. The key measures implemented: weight optimisation, improved serviceability, greater passenger capacity, as well as significantly lower fuel consumption. Particular attention has been paid to efficiency and optimisation of fuel

MAN Truck & Bus is one of Europe's leading manufacturers of commercial vehicles and supplier of transport solutions, with revenues of approximately €9 billion a year (2015). The product portfolio includes trucks, buses and diesel engines, as well as services related to passenger and cargo transport. A subsidiary of Volkswagen Truck & Bus GmbH, MAN Truck & Bus employs more than 35,500 people worldwide.



consumption. In addition to various weight-reducing measures and Euro 6 exhaust technology, other features include idle shutdown and improved software for ZF and Voith automatic transmissions as well as power-saving interior lighting and LED displays. Other essential features, such as the two-stage air compressor with automatic idle system and optimised cowl flap, also help to reduce fuel consumption. The optimised cowl flap results in improved air flow characteristics, meaning that the engine cooling system has less work to do, thus reducing the amount of energy required. All in all, this can cut fuel consumption by as much as 0.3 l per 100 km, if cleaned regularly. Operation of the ZF-EcoLife Step 3 automatic gearbox has been optimised and this product offers a wide range of software innovations such as softer torsional dampers and updated control electronics. The new software delivers superior retarder performance and closes the torque converter at an earlier point than before.

As of Spring 2016, MAN Lion's City will also be available with the DIWA6 automatic gearbox by Voith. Customers not only benefit from a marked reduction in fuel consumption, but also from lower noise emissions, achieved by optimum integration of the gearbox into the drivetrain. Besides the development of softer switching operations and an improved, terrain-based switching programme for lower engine speeds, wear and durability of the entire drivetrain are also improved.

In addition, a number of innovations have resulted in a significantly lighter-weight vehicle (around 200 kg less in the case of a 12-meter bus): weight-optimised air-conditioning (Spheros), the new lightweight and ergonomic generation of City Light seats as well as various changes to the frame and body. The new type 4 CNG storage system also significantly reduces the weight of MAN natural gas buses.

Altogether, fuel consumption of the new, more efficient Euro 6 city bus has been reduced by about up to 10 percent compared to the EEV generation.

MAN city buses – proven safety and comfort

In addition to its efficiency-boosting measures, MAN has also extensively developed its city bus portfolio in terms of comfort and safety. Concerning safety, the Lion's City really scores thanks to its torsion-resistant frame, ESP, EBS, engine start lock, emergency brake signal, rain/light sensor and automatically closing skylights. When the vehicle moves off from a standstill with forebody and afterbody at a fairly tight angle, then the electric articulation control system for articulated buses prevents pushing over the



central axle. This ensures that the driver has sufficient torque to manoeuvre the vehicle safely and comfortably in any situation.

In terms of comfort, MAN is one of the first manufacturers of city buses to provide the new ISRI NTS2 generation of driver's seats as a standard feature, whereby MAN places particular emphasis on comfort and ergonomics in the cockpit, the driver's workplace. Key features here are lumbar support (specially formed backrest), three-dimensional adjustable seat, adjustable armrests and seat air conditioning. The convenient low-floor axle also contributes significantly to increased comfort, as does the new City Light generation of passenger seats and the more efficient range of air conditioners.

MAN city buses – easy to service and cost-efficient

MAN has taken the growing importance of life-cycle costs (LCC) into account by making a wide range of improvements in the area of serviceability. Segmented side walls significantly reduce not only weight but also downtime and repair expenses in the event of damage.

Always reliable, robust and low on maintenance, MAN's new city bus doors offer the right solution for tough everyday conditions. The redesigned MAN doors will be available in single-leaf and double-leaf versions, as an outwardly opening door (AST) with pneumatic drive as well as a double-leaf version as an inwardly opening door (IST) (pneumatic and electric drive) . MAN will complement their in-house door range at the IAA 2016 with the electric opening sliding door (SST) as a single-leaf and double-leaf version. The double-leaf SST will enable MAN to be the only provider in the market place to implement an extra-wide step unit at Door 1, and therefore create even quicker passenger flows.

The new doors achieve significant quality improvements thanks to their strain-free mounting in every door position and the use of wear-free components as well as through optimised sensing and cable routing. The door motion is more harmonious, faster and quieter, with no lubrication or adjustment required. The innovative, fully encased drive unit is sturdier and better protected against dirt than existing systems. Only tried-and-tested, durable components will be utilised and high-quality, economical spare parts will be available.

The MAN Lion's City is characterised by new design developments and improved passenger comfort. The exterior features a black central front flap which therefore enhances all of MAN's models with a uniform appearance.



Added to this are the LED daytime driving lights, which not only improve the buses appearance, but also enhance safety.

In the interior, LED lighting provides a pleasant atmosphere. Exclusive, high-quality upholstery fabrics in sophisticated, elegant colours complete the ambience of the passenger area. The modern interior design is rounded off by USB charging sockets on selected seats and the technical preconditions for fitting a wireless router. A point of particular note is the glazed side wall of the standing platform, available upon special request by the customer, which provides more light in the interior.

MAN's leadership of the city bus market is emphasised by the Lion's City having won the "Bus of the Year 2015" award, with the Lion's City GL CNG managing to beat off its competitors: Mercedes-Benz Citaro G, Iveco Urbanway Hybrid, Scania Citywide LF CNG and VDL Citea SLFA-180.