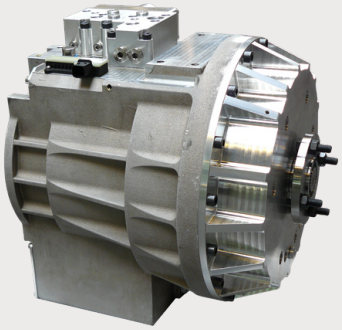
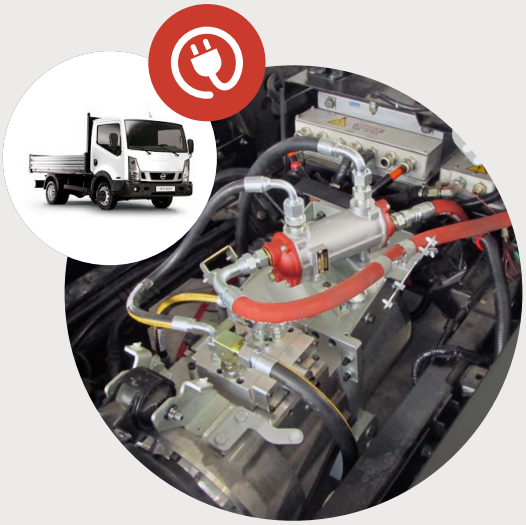
MAZARO
driving innovations

Game-changing transmissions without slip losses for 14-20% savings in current transport





MAZARO's transmissions make current vehicle drivelines exceptionally efficient as they are unique in keeping the engine or E-motor on their best efficiency curve nearly all the time and because they do not contain the usual energy wasters such as clutches, torque converters, synchronizers, piston rings, toroids or belt. There is no traction reduction or efficiency drop during ratio changing.

What's more, MAZARO's innovative hydraulics use less than 0.1% of the vehicle's energy consumption which is extraordinarily low.

Officially proven in a 3.5 ton electric delivery truck:

16,8%
further driving with the same amount of electricity *

Silent
operation

Unnoticeable ratio change,
without torque reduction or efficiency drop

* compared to a fixed gear set, in a WLTC duty cycle limited to 80 km/h.

Depending on a vehicle's requirements, this efficiency gain can also be translated into:

- more than 12% cost saving through downsizing of the batteries and E-motor
- higher traction for enhanced hill climbing capability and for higher top speed (+50% in the E-truck, from 80 to 127 km/h)

E-truck demo: technical background

Tests were performed by an independent test and homologation center. The baseline for the energy consumption measurements was a 3.5 ton delivery truck in which the diesel engine was replaced by a UQM 145 Powerphase motor. A single step fixed gear reduction of 2.68:1 connects the E-motor to the propshaft.

Being the reference, the energy consumption of driving twice a WLTC cycle (limited at 80 km/h) according to standard procedures was quantified by measuring the energy taken from the electric grid.

Then the gearbox was replaced by MAZARO's SVT230, including the transmission controller and hydraulic powerpack. The E-truck, with MAZARO's transmission integrated, is fully functional for driving on the road.

Then again, the same WLTC driving cycle was performed twice. The same amount of braking energy recovery was programmed to ensure that the energy savings were solely created by the transmission.

As the energy consumption was compared by measuring the energy taken from the electric grid, the hydraulic and the electric power consumption were included as well.

The transmission controller continuously adapts the transmission ratio to the actual driving condition.

Suitable for combustion engines, E-motors and hybrids:

2 versions were developed:

The SVT - designed for electric vehicles. Expected overall efficiency of newest versions 97,5 to 98%, current version 95,5%.

The RVT - designed for combustion engines and hybrids, changing the ratio over standstill between forward and reverse continuously without clutches or torque converter. Expected overall efficiency of next RVT: 94,5 to 95%. Current status, confirmed on test bench: 91%. Its overdrive speed ratios: 53% more than a 6 speed automatic. RVT simulations predict 17% energy savings in a city bus.

Primary markets:

City and interregional buses, trucks, tractors, heavy duty vehicles, fork lifts, container handlers, tractors, passenger cars.

MAZARO's transmissions can also be very useful to optimize the efficiency of bus airco's, cooling fans, industrial generators and compressors.

About MAZARO

As an automotive engineering company, MAZARO is licensing its innovative transmissions to production partners. MAZARO was founded by ir. Filip De Mazière to commercialize this new technology he invented, after having created transmission designs for leading off-highway and sportscars manufacturers for over 20 years.

Contact

Get in touch for a customized simulation of the savings MAZARO's transmissions will have on your vehicles or industrial applications.

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