Electric Vehicle Technologies

In times of growing environmental awareness, the need for low carbon emission vehicles is paramount to fulfil global demands for transport and efficiency. The electric vehicle market is growing fast with carbon footprints being reduced across the board.

TRW Conekt has been working in conjunction with a variety of organisations to lend its expertise to this field using new technologies to adapt established products in order to complement the electric vehicle market.

Electric City Cars - EPHS

Eliminating the internal combustion engine from a vehicle means that an alternative to the traditional power steering pump is required. For electric vehicles, Electrically Powered Hydraulic Steering (EPHS) pumps can be used to provide full power steering capability. Due to the nature of electric vehicles, power consumption is a critical characteristic. Minimising power consumption is of vital importance to overall vehicle performance.

The Conekt Approach

Conekt has developed a series of electrically powered hydraulic steering pumps to provide full power capability. The level of assist provided by the EPHS pump is governed by the vehicle speed and rate of steering.

Benefits

By adapting this technology, the maximum amount of assist is available when required, e.g. during parking manoeuvres. The power consumption is significantly reduced when steering assistance is not required such as with motorway driving. This results in excellent steering feel while helping to maximise the vehicle performance by reducing drain on the battery.

TRW Conekt
Technical Centre
Stratford Road
Solihull B90 4GW
United Kingdom

Tel: +44 (0) 121 627 4242
Fax: +44 (0) 121 627 4243
conekt-enquiries@trw.com
www.conekt.net

Electric City Cars - EPB

The location of the electric motor and battery pack within electric vehicles has a direct impact on the performance of critical functions of the vehicle. It may be that the placement of the battery pack in a city car means a conventional park brake cable cannot be routed to the rear brakes. The development of an Electric Park Brake (EPB) is an important solution to space saving within electric vehicles.

The Conekt Approach

TRW's EPB system uses electric actuators to apply the parking brake, removing the need to route park brake cables to the rear wheels.

Benefits

Requiring only electrical connectivity provides greater freedom for packaging within the vehicle as the removal of cables allow alternative spacing design and improved flexibility. The EPB also provides additional functionality by increasing driver comfort and convenience with automatic application and release. Should there be a failure in relation to the foundation brakes, the EPB provides safe deceleration while the vehicle is in motion.

Electric Commercial Vehicles - EPHS

With many organisations requiring fleets of vans, the need to adapt these to electrically run vehicles is growing. As for electric city cars, conventional power steering pumps are not viable within electric commercial vehicles. These vehicles are also typically heavier than small city cars so the power of the steering system is key to drivability.

The Conekt Approach

By carefully selecting an appropriately sized EPHS pump, Conekt is able to provide a power steering solution for this large electric vehicle, which is tailored to its specific requirements.

Benefits

Conekt is able to develop a steering pump capable of providing light and comfortable steering for vehicles up to 3000 kg axle weight. The amount of assistance is governed by the vehicle speed. This allows for the provision of greater assist at low speeds such as parking and slow manoeuvres while maintaining less assist during highway driving. The power consumption of the steering system is therefore less than a conventional system resulting in improved vehicle performance.

TRW Conekt is continually investing in developing technologies alongside research and development facilities to maintain leading edge expertise. For more information on TRW Conekt's work within this field, please contact Conekt on +44 (0) 121 627 4242 or email conekt-enquiries@trw.com.

conekt
powered by TRW

TRW Conekt
Technical Centre
Stratford Road
Solihull B90 4GW
United Kingdom

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