PRESS KIT
VALEO INNOVATIONS
FOR COMMERCIAL VEHICLES

NORTH AMERICAN COMMERCIAL VEHICLE SHOW – ATLANTA
Valeo innovations for commercial vehicles: reduced running costs, enhanced safety and comfort .................................................................3

Serving the transportation industry through electrification and thermal management..............4

Valeo’s 48V belt-driven starter-alternator ......................................................................................4
Active Grille Shutters: regulating air flow to generate savings ......................................................5
Valeo compressors for trucks........................................................................................................5
HVAC...........................................................................................................................................5
Optimum Li-ion battery cooler .....................................................................................................6

Safety, comfort and well-being: three key components to operational efficiency in transportation .................................................................7

Remote Clean4U™, remote windshield defrosting and debugging......................................................7
Full LED lighting systems................................................................................................................8
V2X technology................................................................................................................................8
The Valeo Minisphere rooftop air conditioner .............................................................................. Erreur ! Signet non défini.
The Valeo Thermo E heating unit.....................................................................................................9
Modular, contactless switches.........................................................................................................9

Appendix .......................................................................................................................................10
Valeo innovations for commercial vehicles: reduced running costs, enhanced safety and comfort

Valeo is taking part in the inaugural North American Commercial Vehicle (NACV) Show, being held in Atlanta, GA, from September 25 to 28, 2017. The Group is exhibiting its latest technological innovations designed to reduce running costs by lowering energy consumption and improve drivers' safety and driving comfort.

As a world leader in CO₂ emissions reduction, Valeo is taking advantage of NACV 2017 to showcase its range of 48V electrification systems, which contribute to reducing fuel consumption in commercial vehicles. With their affordable price tag, these solutions help make hybrid vehicles accessible on a large scale.

Effective heat flow management offers another avenue for saving fuel. For this reason, Valeo has developed lines of radiators and electric battery cooling systems that are equally effective in extending vehicle range and better protecting battery service life. Used alongside electrification solutions, these innovations work together to reduce the total operating cost of delivery vans, trucks and other commercial vehicles.

In the area of safety, Valeo is unveiling its new Full LED headlamp technology, which increases both driver visibility and component lifespan.

Lastly, illustrating the special attention it pays to driving comfort, Valeo is also exhibiting new, more energy-efficient air conditioning systems and fine particle filters in Atlanta.

Valeo is a major player in the automotive industry and ranks among the world’s top automotive suppliers. As a technology company, Valeo is fully focused on the design, production and sale of components, integrated systems and modules for the car and truck industry in both the original equipment and replacement segments. Building on its status as a pioneer, and the world No. 1 in vehicle electrical systems (one in every three cars worldwide is already equipped with a Valeo alternator or starter-alternator), Valeo is presenting a very comprehensive offering to support the CO₂ emissions reduction revolution, including in the commercial vehicles market.

Valeo’s innovations are marketed at competitive prices so as to be widely accessible throughout the world. This generates savings both for vehicle manufacturers, who gain access to more cost-effective solutions for complying with anti-pollution standards, and for fleet managers, who see their energy bill go down.
Serving the transportation industry through electrification and thermal management

At NACV 2017 in Atlanta, Valeo is unveiling its 48V solutions and thermal management systems designed to reduce fuel consumption.

Leveraging the years of experience gained since the 2004 release of its Stop-Start system, Valeo has expanded its range to include a large number of new innovations and is today the world leader in 48V technologies. Applicable to all vehicle categories, these solutions are particularly well suited to trucks and other commercial vehicles because they help reduce fuel consumption, notably when the engine is idling. This enhanced performance is especially significant given that a delivery van driving in the city or suburbs consumes – or rather wastes – an average of 15% to 20% of its fuel during idling and braking phases.

**Valeo’s 48V belt-driven starter-alternator:**
the affordable hybrid solution adapted to the transportation industry

Valeo has developed a hybrid system that combines a conventional internal combustion engine with a low-voltage (48V) electric motor. Compatible with all vehicles currently in production, it is the most economic method available to vehicle manufacturers today for introducing hybrid technology into existing vehicles. Valeo’s 48V system generates strong benefits for a cost significantly lower than a high-voltage hybrid solution.

The Valeo 48V starter-alternator is available in two versions (4kW and 8kW of continuous power) and features Stop-Start and regenerative braking technology.

- **Stop-Start** systems shut down the engine when idling and restarts it when the vehicle is ready to pull away.
- **Regenerative braking** recovers the vehicle’s kinetic energy during braking and stores it as electrical energy in a 48V battery. This energy is then reused to boost the engine during acceleration without using excess fuel and to power various electric components, either directly with 48V output or after being stepped down by a DC/DC converter to 12V or 24V.
**Active Grille Shutters: regulating air flow to generate savings**

At NACV 2017, Valeo is presenting its Active Grille Shutters, a system that improves vehicle aerodynamics by closing the radiator grille when the cooling system is not running at full capacity.

With this innovation, the average aero drag coefficient of the vehicle is improved by 9%* when the Active Grille Shutters are closed, and warming time in cold conditions is halved. The Valeo-developed solution is lightweight and features screwless assembly. The Active Grille Shutters regulate front-end air inlet flow, thereby reducing drag and heat loss. The system also contributes to reducing fuel consumption and, by extension, CO₂ emissions.

* Valeo estimate provided for illustrative purposes only and subject to change depending on various factors, such as vehicle usage and driving style.

**Valeo compressors for trucks:**
**new benefits for drivers and passengers**

Valeo has been fine-tuning its expertise in air conditioning compressors for more than 50 years. In particular, Valeo has developed a series of compressors for trucks, offering an oil-leak-free solution (no oil change required) around 50% lighter and smaller than a conventional reciprocating compressor or similar. The Valeo-designed compressors require up to 40% fewer parts and can significantly reduce noise and vibration, resulting in fewer breakdowns, greater reliability for drivers and enhanced comfort for passengers.

Compact and cube-shaped, Valeo’s compressor for trucks can be easily installed alongside the engine, freeing up valuable space in the engine compartment for fuel-saving and emissions-reduction technologies, such as selective catalytic reduction (SCR) and exhaust gas recirculation (EGR) systems and tanks for exhaust gas aftertreatment fluid AdBlue®. This advantageous design is recognized by the world’s leading engine manufacturers.

**HVAC: advanced modules**
**in line with modern truck market expectations**

Fleet managers and vehicle manufacturers alike are looking for efficient heating, ventilation and air conditioning (HVAC) systems that can combine low energy consumption – and therefore low CO₂ emissions – with a long lifespan, thereby containing the two largest contributors to running costs. Driver comfort is another important consideration, as savings are meaningless if they are detrimental to drivers. On this basis, Valeo has developed HVAC modules that stand out for their high degree of energy efficiency, outstanding performance, long lifespan and superior comfort as well as their lower CO₂ emissions.

The brushless blower motors used in the HVAC systems are key to achieving Valeo’s ambitious targets for cutting greenhouse gas (GHG) emissions and reducing noise. The compact design of Valeo’s HVAC solutions has reduced weight by up to 30% compared with conventional systems. In
addition, the solid aluminum heat exchangers designed by Valeo provide high power density along with excellent resistance to pressure changes, making for a robust and durable solution.

Depending on specifications and whether the equipment is required for long-distance travel, deliveries or construction site work, the HVAC system can be fitted with the most suitable cabin air filter. This may be a particulate filter, a combination filter based on activated carbon or a very high efficiency filter capable of capturing particles smaller than 2.5μm. Valeo also develops other technical solutions to improve driver well-being and reduce pollution and lingering odors in the cabin.

Taking all this into account, the HVAC module developed by Valeo meets market expectations in terms of CO₂ emissions, comfort, noise, performance and durability.

**Optimum Li-ion battery cooler**

Batteries represent a significant proportion of the total cost of an electric vehicle. Effective thermal management is key to guaranteeing the reliability and durability of Li-ion batteries.

Batteries are sensitive to changes in temperature, particularly when charging. For optimal longevity and performance, the batteries’ temperature must be maintained at between 15°C and 45°C and consistent across the cells. An increase of just 10°C above the limit determined for the battery halves its service life.

Valeo’s technologies protect batteries from the risk of degradation. Leveraging its extensive experience in the area, Valeo offers vehicle manufacturers a wide variety of solutions for both hybrid and all-electric vehicles, as well as designing and manufacturing compact systems to meet all of their needs across the price spectrum.

The Valeo-developed battery cooling system maintains the battery cells in hybrid and electric vehicles at an ideal operating temperature – below 45°C – while ensuring a consistent temperature across the cells. The batteries are cooled by either refrigerant or glycol circulating through a chiller inserted optimally into the battery pack.

Valeo can design battery cooling systems of all sizes to adapt to any vehicle type, whether hybrid, plug-in hybrid or all-electric. Thanks to the solution’s ultra-flat design, the plates and tubes make excellent contact with the battery pack, thereby ensuring a uniform temperature. Valeo is the leader on this market, with a projected market share of 15% in 2018.
Safety, comfort and well-being: three key components to operational efficiency in transportation

Visitors to the inaugural NACV will be treated to a first-hand look at Valeo’s latest technologies to improve onboard safety, including lighting and vehicular communication systems. In terms of driving comfort in trucks and other commercial vehicles, the Group is exhibiting its new air conditioning and heating solutions, its remote windshield defrosting system and the first contactless modular switches.

Remote Clean4U™, a revolutionary remote windshield defrosting and debugging system controlled via a smartphone application

Easy to use, Remote Clean4U™ is more efficient than other methods of defrosting and debugging and significantly improves driving safety and comfort. The system has two innovative functions that the user can control remotely from a smartphone: Defrosting, which automatically defrosts a windshield in less than 90 seconds, and Debugging, which in record time washes away insects stuck to the windshield. It also features AquaBlade® technology, which allows for improved reaction times compared with conventional cleaning fluid projection systems, providing a clear view of the road, even when the wipers are operating.

For end-users, the four main advantages of Remote Clean4U™ are:

- The very short time needed to defrost the windshield (60% of respondents in a Valeo survey).
- The convenience of the remote control feature (57%).
- The energy savings generated by operating the system without the engine running (25%).
- Safety, as the system does not obstruct the driver’s vision, allowing for a similar reaction time to that obtained with a clean windshield.

DID YOU KNOW?
Remote Clean4U™ can appeal to all drivers, irrespective of their vehicle type. According to an IPSOS survey, 98% of motorists consider the Remote Clean4U™ Defrosting function as either useful or essential.

Remote Clean4U™ currently exists in a variety of models, some of which can be fitted without physically altering the vehicle while others require the addition of a small tank or cartridge. Whatever the installation requirements, there is a Clean4U solution for every vehicle.

The Defrosting function distributes an environmentally friendly defrosting fluid through Valeo’s exclusive AquaBlade® windshield wiper system. The fluid is not projected onto the windshield but precisely distributed across its entire surface, cleaning it more evenly and uniformly without wasting fluid. This system is more efficient than a heated windshield and consumes 28 times less energy than an electric defrosting system. Not only is it environmentally friendly and more efficient, the system is also more convenient thanks to its remote Defrosting function, which allows the driver to defrost the windshield without having to go out to start the engine.
Using a smartphone application, the driver can remotely start Remote Clean4U™’s **Debugging function**, which in record time washes away insects stuck to the windshield. Thanks to its specially formulated cleaning fluid evenly distributed through the **AquaBlade®** windshield wiper system, this innovative function improves visibility while using less fluid and energy. AquaBlade® also makes the vehicle 2kg lighter since only a small amount of fluid is needed to clean the windshield.

**Full LED lighting systems**

In terms of lighting for trucks and other commercial vehicles, Valeo is displaying its MyBeam LED work lamp technology at this year’s NACV. With light output of 900lm on the road and weighing only 325g, bracket included, the lamp offers one of the best performances on the market. Valeo has rounded out its LED offering with the Cibié Trackliner auxiliary headlamp. Designed to provide extra light, this system is made up of an ultra-compact module equipped with bright LEDs that extend visibility to up to 450m.

**DID YOU KNOW?**
Never change another light bulb! With LED technology, the light module no longer requires any maintenance. And yet, the color produced is very similar to daylight to ensure maximum visibility in all weather conditions.

**V2X technology: vehicular communication tailored to trucks**

To enhance driver safety, Valeo gives vehicles the power to “communicate”. To do this, the Group has developed vehicle-to-everything (V2X) technology, which enables vehicles to connect to other vehicles and road infrastructure in order to reduce not only accidents but also fuel consumption and CO₂ emissions.

Truck-to-truck communication, for example, can help significantly decrease the distance between vehicles traveling in a convoy and, in doing so, improve overall aerodynamics.

Using Valeo’s camera system, the trucks can also monitor the surrounding environment, seeking out information in the form of 360° images. As the cameras are interconnected, trucks driving in the same convoy can “see” what is happening at the front and rear of the pack, thereby improving safety and driving comfort.

Vehicle-to-infrastructure (V2I) communication is also extremely important for trucks. Traffic congestion, for example, is often caused by the time it takes for vehicles to stop and then start again. Communication between road infrastructure and trucks can improve the situation by limiting the number of times trucks need to slow down or stop as well as optimizing their cruising speed and informing the driver about road conditions. This would have substantial benefits for overall traffic flow as well as CO₂ emissions and accident rates.
The Valeo Minisphere rooftop air conditioner

The Valeo Minisphere rooftop air conditioner sets a new benchmark in terms of weight, design, performance and efficiency. The unit is the only All-in-One System offering fresh air vent in its class.

Offering a cooling capacity of 10kW or 13kW, the modular Valeo Minisphere rooftop air conditioner is compatible with all minibuses worldwide and adapts to all different climates. With a remarkably low weight of 84 lbs for the 10kW version, it is 48 lbs lighter than its predecessor and therefore the lightest air conditioning solution available for minibuses. Due to this the unit is fast and easy to install on the vehicle and offers an attractive option for retrofitting. Its sleek, aerodynamic design blends in optimally with the vehicle’s overall silhouette. In addition, the unit has optional heating and fresh air functions (30% fresh air).

The Valeo Thermo E heating unit, combining performance, robustness and economic efficiency

Available in 20kW and 32kW versions, the Valeo Thermo E bus heating unit uses minimal energy to produce heat, making it extremely cost effective.

The solution also offers a high degree of reliability thanks to the use of time-tested components and an integral control unit with waterproof connectors. In addition, maintenance is limited to simple operations, further reducing total running costs.

Modular, contactless switches, capable of withstanding extreme conditions

To cater to consumer expectations, Valeo has come up with a new switch concept that allows customers to implement certain specific applications without shouldering the significant investment in development and machining or waiting out the design process. In particular, the switch combines the most common functions and can be styled to reflect the identity of a particular brand.

Valeo’s contactless switches set a new standard for flexibility, durability and longevity, all while reducing maintenance costs. They offer good wear-resistance throughout their service life and are compatible with a wide variety of architectures, including CAN, LIN and low current switching, ensuring an excellent level of design flexibility. The switches are also more reliable as they can be used in extreme environments and are resistant to rough handling.
APPENDIX

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