Press release

Munich, September 17, 2010

Knorr-Bremse at the 2010 IAA Commercial Vehicles: Energy efficiency and vehicle safety

At the 63rd International Motor Show – IAA Commercial Vehicles – to be held from September 23 to 30 in Hanover, Knorr-Bremse will be showcasing a large number of innovative products designed to benefit both vehicle manufacturers and fleet operators (Hall 17, Stand A 30). The main focus will be on technologies to increase energy efficiency and improve vehicle safety by the use of driver assistance systems. The Knorr-Bremse stand will contain individual product “islands” covering the various customer segments such as “Truck and Bus”, “Trailer and Axle” and “Aftermarket and Service”. There will also be a “Regional Technology Center” that focuses on region-specific requirements for braking systems – for example in the BRIC states (Brazil, Russia, India, China).

Increasing energy efficiency and reducing emissions

The importance of energy efficiency has grown significantly in the commercial vehicle sector in recent years. There are two reasons for this development: Firstly, climate change and an increasing number of natural disasters have raised awareness of the need for energy-saving technologies. And secondly, spiraling costs have led to calls for new products to offer greater energy efficiency. That is why the development of fuel-efficient technologies has been a top priority for Knorr-Bremse for many years, and at this year’s IAA the company will be showcasing a wide range of innovative solutions developed in response to market demand.

An important contribution towards increasing energy efficiency and reducing emissions is made by the Electronic Air Control (EAC2) system – a further development of the highly successful EAC1 system. With a combination tried-and-tested pneumatic components and intelligent electronics, the system offers fuel savings of up to several hundred liters per vehicle per year. Unlike conventional systems that use the compressor to build up the required air pressure, whatever the driving situation, EAC2 adopts an intelligent approach to compressor operation. On uphill gradients or during overtaking the system switches the compressor to neutral, thus reducing the load on the engine, whereas when excess energy is available – for example during overrun during braking or on a downhill gradient – EAC2 switches into compression mode. EAC2's intelligent system is also capable of controlling the clutch compressor, a development by Knorr-Bremse that engages or disengages the compressor according to requirements. If the reservoir contains sufficient compressed air, the system disconnects the compressor from the engine so that no energy is required to keep it running in neutral. Combining the clutch compressor and EAC2 increases the fuel savings and reduces CO₂ emissions by up to 2.5 tons per year.

Fuel savings are also the aim of the Pneumatic Booster System (PBS), which enhances engine performance briefly by blowing surplus compressed air from the pneumatic system into the inlet manifold of the engine. Within half a second of the system being activated, sufficient oxygen is available to effectively eliminate so-called “turbo lag” during acceleration. The short-term
increase in torque enables the driver to change up earlier and maintain a low engine speed without affecting the vehicle’s performance. Depending on the overall journey profile, this so-called “downspeeding” can achieve fuel savings of between 2% and 4.5%. The system also enables the engine itself to be downsized, as the acceleration of a vehicle equipped with PBS is comparable to one with a 20% to 30% higher cubic capacity. This means that for the same cost, engines with lower torque, lower weight and lower fuel consumption can be used. As the air requirements of the PBS depend largely on how the vehicle is used, Knorr-Bremse offers a combination of PBS, compressor and air treatment system that is tailored to the particular requirements of customer and vehicle.

Knorr-Bremse will also be showcasing a solution for compressed air generation in hybrid vehicles – the screw compressor. Unlike traditional systems, the screw compressor is not driven by the engine – instead it uses electrical energy from the vehicle’s batteries. The advantage of this is greater flexibility in terms of installation – it can, for example, be located on the vehicle roof or on the chassis. Other advantages are the low noise and vibration levels, low pulsation, and continuous compression.

Vehicle safety

As traffic volumes grow, new vehicle safety technologies are increasingly focusing on reducing the burden on the driver and avoiding accidents. The European Commission has underlined the importance of this issue by setting itself the goal of reducing traffic deaths from 52,200 year in 2000 to 26,100 in 2010. With its electronic driver assistance and safety systems for commercial vehicles, Knorr-Bremse makes an important contribution towards stabilizing vehicles and avoiding collisions. Electronic driver assistance systems and safety functions combine with the company’s reliable, tried-and-tested braking systems to improve accident prevention.

The most effective approach to avoiding accidents involves networking all the assistance systems with each other and linking them up to the braking system. Knorr-Bremse offers just such a comprehensive safety system in the form of the latest EBS and ABS brake control platforms, which integrate functions such as coupling force control (CFC), traction control (ASR) and retarder blending with the ESP electronic stability program.

In particular the integration of ESP has made the EBS electronic brake control system more relevant than ever, as from 2011 onwards particular types of heavy truck will be required by law to be fitted with ESP in Western Europe. ESP intervenes in the braking and engine control systems, helping the driver maintain control of the vehicle even in critical situations. Judicious application of the brakes on individual wheels prevents the danger of rollover or jack-knifing and helps prevent many accidents from occurring. Since 2009 Knorr-Bremse has been supplying ESP for road trains as well as for semitrailers and buses.

At the IAA Commercial Vehicles, Knorr-Bremse will also be exhibiting the second generation of its Trailer EBS system – TEBS G2.1. This latest version completes the product portfolio by offering additional functions and further extending the already wide range of uses for the system. In particular the addition of ABS functionality for trucks with more than three axles means that Trailer EBS is now available for every type of vehicle.

Combining Trailer EBS with the Trailer Roadtrain Module (TRM) also enables ultra-long trucks with trailers or semitrailers such as “EuroCombis” and roadtrains to brake rapidly and safely. In the case of a 60-meter long heavy truck with conventional air brakes and pneumatic signal transmission, 75% of the braking force is only available after a 1.6 second delay following application of the brakes. By combining the TRM with Trailer EBS, electronic signal transmission significantly reduces the response time to less than a quarter of a second. The TRM can also be
used in combinations where the tractor vehicle does not have an electronic braking system. In this case, pressure sensors convert the pneumatic signals into electronic ones and pass these on without delay to the Trailer EBS via a CAN.

When Knorr-Bremse is developing products it not only focuses on the requirements of various customer segments but also on the needs of regional markets and the local conditions there. An impressive demonstration of this will be given when the latest ABS system is presented at the IAA. This scalable, cost-effective solution has been available since 2006 with an integrated ESP function and can be tailored to the precise technical requirements of regional customers. The extremely robust design of the ABS components means the system can be used in the BRIC states in particular. Again this represents an important contribution towards improved traffic safety all over the world. With the integrated ESP function the ABS system also complies with European ESP legislation.

The use of intelligent sensors based on modern radar and video technology also further extends the functions of EBS and ABS in the field of driver assistance systems.

Two of the most important new driver assistance systems to be presented at the IAA are the Autonomous Emergency Brake System (AEBS), and the Lane Departure Warning system (LDW). The first of these helps avoid a rear end collision, for example when there is a tailback on the autobahn. A radar sensor and video camera monitor the vehicle in front and alert the driver with an acoustic signal if danger arises. If he ignores the signal, the system intervenes in the braking system, if necessary triggering emergency braking. The Lane Departure Warning system uses a video camera to monitor the vehicle’s lane position. If there is a danger of it drifting out of its lane, the driver is again warned by an acoustic signal.

Since mid 2009 Knorr-Bremse’s American subsidiary Bendix has also been manufacturing an Adaptive Cruise Control system (ACC) with active braking and collision warning. Acquisition of Eaton VORAD in 2009 means that Knorr-Bremse is now the market leader for ACC systems in North America.

Another system for increasing safety and fuel efficiency is the Tire Pressure Monitoring System TPMS that Knorr-Bremse has included in its portfolio since it acquired the Canadian market leader Smarttire in 2009. This wireless sensor system, which can be retrofitted to virtually any vehicle, is an efficient and cost-effective way of monitoring the pressure and temperature of tires on semitrailer tractors, trailers, trucks and buses. At the press of a button the driver can obtain real-time information on tire pressures, with the system warning him if tire pressure falls below a particular level or the temperature of the tire exceeds 90° C. In addition to improving safety, TPMS also makes an important contribution towards greater fuel efficiency, as even a 10% drop in tire pressure results in an increase of 1.5% in fuel consumption.

Worldwide systems competence

All over the world, Knorr-Bremse can be found offering solutions and innovative products for greater energy efficiency and enhanced safety – each tailored to the requirements of individual markets and countries. To illustrate this, the IAA stand will include a Regional Technology Center (RTC). True to the motto of “a global presence makes local solutions possible”, Knorr-Bremse’s product development activities focus on customers’ needs in a wide range of countries with differing climates, infrastructures and traffic conditions.

Knorr-Bremse has also established local production facilities in the BRIC states for virtually all of its products. The company’s global systems competence and worldwide presence, with its ex-
tensive network of sites, enable it to respond directly to local conditions when it is developing innovations.

IMPORTANT DATE:

On September 22, 2010 at 13:30 a press conference on the topic of “Solutions for saving fuel and increasing safety” will take place at the Knorr-Bremse stand (Hall 17, Stand A 30)

Knorr-Bremse Group

The Knorr-Bremse Group is the world’s leading manufacturer of braking systems for rail and commercial vehicles. For more than 100 years now the company has pioneered the development, production, marketing and servicing of state-of-the-art braking systems. Other lines of business in the rail vehicle systems sector include automatic, electro-pneumatic or electric door systems, air conditioning systems, control components and windscreen wiper systems, as well as platform screen doors. In the commercial vehicle systems sector, the product range includes complete braking systems with driver assistance systems, as well as torsional vibration dampers and powertrain-related solutions such as the Pneumatic Booster System (PBS) and transmission control system for enhanced energy efficiency and fuel economy.

Contact:
Knorr-Bremse AG
Moosacher Straße 80
D-80809 Munich
www.Knorr-Bremse.com

Christoph Günter
Vice President Corporate Communications
Tel: 089-3547-1402, Fax: 089-3547-1403
E-mail: Christoph.Guenter@knorr-bremse.com