



New constructs

BAUMA may be the main event for mining and construction, but technology doesn't always respect industry boundaries. Ian Norwell and Brian Weatherley report on trucks, engines and cranes

If you're looking for trucks capable of taking some punishment, the recent BAUMA event, in Munich, saw Iveco unveil its Daily 4x4 at Euro 6, as well as the Trakker 6x6 and (not for the UK) an 8x6 version of its Astra brand, writes Ian Norwell.

Taking the Daily first, marketing manager Manfred Kuchlmayr described the 4x4 as between a Land Rover and a Unimog. A niche truck, yes, but, given the popularity of its 4x2 sibling among supermarket and home delivery firms (which like its Hi-Matic ZF eight-speed auto), Kuchlmayr believes it will do well.



The new variant's Euro 6 package includes a four-cylinder, 3.0-litre heavy-duty common rail engine delivering 170bhp and 400Nm of torque. The six-speed overdrive gearbox is coupled to a central transfer case with four low ranges, yielding 24 ratios in all. Such a spec, and a vast choice of PTOs (power takeoffs) probably allows it to sit beside the Unimog without feeling too small.

Meanwhile, quarry and construction applications - and there are plenty in the UK - now have a Eurocargo 4x4 to consider. Specification is day or sleeper cab, with standard roof, gross weights of 11.5 or 15 tonnes, and wheelbases from 3,240 to 4,150mm. It runs FPT's Tector 7 engine in 220 and 250bhp variants on the 11.5-tonne version, with 250 and 280bhp options on the 15-tonne model.

Iveco points out that this is the only Euro 6 medium-duty truck with Hi-SCR (high efficiency selective catalytic

reduction) and a passive DPF (diesel particulate filter). And, while it's not your standard four-axle aggregate or muckaway vehicle, two-axle tippers are growing in popularity.

More beef appeared in the shape of Iveco's 6x6 Trakker at 26 tonnes, incorporating a handy-looking intarder. And yet more beef was in evidence with Astra's 8x6 heavy-duty dumper, which grosses at 60 tonnes with a 24m³ body. It's mining only, but it takes the Cursor 13 engine at 560bhp.

CUMMINS' SCR-ONLY

Elsewhere, engines giant Cummins - whose range extends from a 2.8-litre diesel for LCV applications to a 60-litre V16 generating 2,500bhp - revealed a new generation of ultra-low emissions power plants (100-430bhp). These have been designed to meet 2019 EU Stage V (off-highway) emissions regulations with EGR (exhaust gas recirculation) free architecture, and single-module aftertreatment technology.

Yes, that means Cummins has now dispensed with EGR for off-highway products, but marketing lead Tim Eady



said the strictures of Euro 6 OBD (on board diagnostics) mean it stays for on-highway - at least for now. Cummins' road-going engines are doing well at Euro 6, and any push to remove EGR would be ill-advised, he said. "Euro 6 is a delicate balance that we don't want to disturb... Naturally, we will remove complexity and weight wherever we can, and there is a point between the extremes of on-highway and off-highway where technology can be integrated."

For Cummins, those extremes might be an off-road dump truck in Venezuela versus an urban bus in Helsinki. That's a broad church needing a wide angle approach, and Eady pointed out that running with multiple engine management disciplines puts the firm in a powerful position to get this right. "Developing the turbocharging, filtration, fuel systems and aftertreatment equipment ourselves has a multiplier effect," he said.

How so? Take turbos. Although Mercedes for one has moved away from



Bird's eye view

By 2018 all Hiab load handling equipment will be connected digitally and communicating with other systems, writes Brian Weatherley. That was the key message from Hiab president Roland Sundén, speaking at the recent BAUMA show. "Efficiency is a key benefit," he insisted. "Connectivity can help fleets make sure equipment is used as much as possible, rather than just a few times a day." And real-time connectivity could see load-handling equipment

operators enjoying other benefits - such as remote condition monitoring and instant 'proof of use' for customer billing.

Hiab also used the Munich show to debut its HiVision 3D remote control crane operating system, initially developed for the logging industry. Using small high-definition cameras mounted on top of the crane coupled to virtual reality goggles, a driver sees the working area and operates the crane from the comfort and safety of the truck cab, rather than having to climb into an external crane cabin or crane-mounted seat.

As the HiVision user turns his or her head from side to side, the image in the goggles

switches from two forward cameras to two side facing cameras. Rafal Sornek, Hiab's vice president of technology and quality development, said safety was a major driver. "With a traditional crane, the operator needs a 240° field of view to see that no one approaches the crane from the side. That's why we decided on four cameras."

Development started on HiVision in mid June 2015. Following a successful proof of concept, the system was subjected to operator trials with timber hauliers. "There was one very sceptical guy who said 'No way: you need to be in the crane cabin or top seat to feel the crane.' Then he got into the truck cab, put on the goggles, and we couldn't get him out."



Meanwhile, Sornek has a longer-term prediction. "In the future the operator won't even have to be in the truck. He will operate [the crane] remotely." His view: with driverless trucks becoming an ever closer reality, it makes no sense to have crane operators sitting in vehicles waiting to get to site. "One person could even operate several trucks remotely."

Underpinning its commitment to neighbourhood-friendly load handling, Hiab also used BAUMA to showcase its ultra-low noise ePTO battery-powered crane system and Moffett E4 all-electric truck-mounted forklift.

single module aftertreatment system for the former, which claims a reduction of up to 59% in chassis footprint and 30% in weight, compared to a standard SCR/DPF combination. Such Stage 5 developments can only help with solving whatever Euro 7 dictates.

According to Eady, Cummins is now putting considerable effort not only into repackaging its aftertreatment systems, but also downsizing them and cutting weight. "We're aiming at a fit-and-forget system, and we are very nearly there," he boasted. [TE](#)