

Selling efficient space



Enlightened trailer builders and operators are looking for enhancements capable of reducing running costs and improving overall efficiency in tandem with reliability. Toby Clark reports

Trailers have changed little in appearance for decades – overall dimension and loadspace requirements dictate a predictably box-like shape. But manufacturers and operators have increasingly been looking at ways to optimise their aerodynamics, loading facilities and running characteristics within that envelope. There is even now a trailer controlled from a smartphone.

Double-deck trailers are an obvious way to uprate load volume. Buffalo Logistics operates them on supermarket and food distribution work, as well as renting them out. With a fleet including 79 Gray & Adams trailers, Buffalo sales director Graham Usher says: “We see this as our future. Fridge double-decks are expensive assets, but it’s not what they cost; it’s how much money they save.”

Height matters

Usher makes the point that maximising internal deck heights is key, “as we’re selling space”. He also says customers are talking about using the same trailers for secondary as well as primary operations. That has a knock-on effect, because cages are slightly higher than pallets so height must be maximised. “Working with Gray & Adams, we have reduced trailer running height and built them to the maximum overall height of 4,930mm, slimming down any area we can.”

But there are compromises. “Tyres are a big operating cost,” explains Usher, “because we run on 215/75R17.5s. We could have fitted 445 super singles, which would have reduced our tyre running costs by £700 per trailer per annum, but then we

would have lost a total of 50mm of internal height.”

His solution: “In March, we will be trialling three trailers with tyre pressure monitoring systems connected to Verilocation satellite tracking, so we can see real-time tyre pressure with alerts when they drop or increase beyond setpoints. This will reduce tyre running costs. We are not sure by how much at this stage, but it could be significant.”

Another firm looking at delivery applications for double-deckers is Transdek, which has returned to trailer manufacture after a long period of building loading-bay lifts. At last year’s CV Show, Transdek showed its DUET (double-deck urban eco trailer), which is claimed to have twice the load footprint and payload of an 18-tonner – the 10.6m trailer can carry 54 roll cages – and with a smaller turning circle.

The rear opening is a ‘sash window’ design, with a pair of compensated sliding doors for a low overall height with safe kerbside offloading – meaning no barn doors to swing into pedestrians or cyclists. The rear aperture is compatible with distribution centre

Transdek’s DUET double-deck eco trailer

Rear diffuser and tapered sides on the SDC Aeroliner





Schmitz SK.I safety tipper trailer, launched at last year's IAA show in Hanover, Germany

double-deck lifts, and full loading can be achieved in as little as 45 minutes.

But be warned: all-important reliability can be sacrificed if you don't get this right. Transdek managing director Mark Adams cites one operator of powered-deck trailers which typically had 25% of its double-deck fleet VOR at any one time.

Meanwhile, EU Directive 96/53/EC may soon mean a dramatic change in the appearance of trailers. It proposes an allowance of up to two metres in length at the rear of a combination for drag-reducing aids, such as boat-tails.

Diffusers and vortex generators

Ahead of their introduction, much effort is being put into cleaning up aerodynamics at the rear of trailers – specifically, reducing the drag induced by the low-pressure region. Tapering the sidewalls or roof can help but has obvious load space penalties. Diffusers and vortex generators offer alternatives, as long as overall height and width limits are observed. Diffusers typically include moulded channels to direct air into the low-pressure zone, often incorporating tapering NACA ducts, while vortex generators can be simple stick-on tabs.

Incorporating a diffuser at the design stage keeps the cost down to a few hundred pounds, but Jost is now offering the retrofittable Spanish-designed SDR

roof diffuser. This unit is claimed to reduce turbulence at the rear of a vehicle by up to 50%, for a fuel saving at speed of up to 4%, meaning a payback of just a few months. The firm also says the rear of the trailer stays cleaner and that spray mist is reduced.

Hatcher Components offers its 'Under-trailer Freddie', which is a moulded fairing mounted behind the trailer landing legs. This is claimed to deliver fuel economy improvements of up to 3% compared with a vehicle having no aerodynamic fuel-saving fitments.

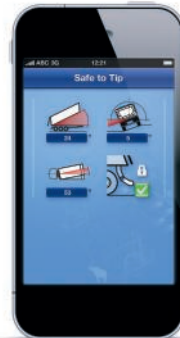
Heavily dished truck and trailer wheels are another potential source of turbulence. But smooth wheel covers, common in North America, have not taken off in Europe. US-based RealWheels offers a range of covers, including clear units for easier wheelnut checking and others with tyre valve extensions built in. Solus claims that the US EPA has verified fuel savings of 1.3% with its trailer wheel covers and wheel cavity cover, while Aerotech Caps claims a 2.44% improvement with covers on both rear tractor and trailer wheels.

What about lighting? Early teething problems with LEDs on trailers seem to have been reduced, as manufacturers become used to CANbus compatibility and electrical load issues. A welcome development is that some, such as TruckLite, are offering lifetime warranties on their trailer harnesses. Meanwhile, LED Autolamps produces a push-and-seal harness with connectors sealed to IP67 standards. This is type-approved, with obvious applications for limited-run production. According to operations manager Jason Grigg, it's "all plug and play", with chassis cables available up to 15m in length.

Finally, it was, perhaps, inevitable that trailer builders would embrace the smartphone app, and Schmitz Cargobull has come good with the S.KI safety tipper trailer, launched at last year's IAA show in Hanover, Germany. This vehicle has a rounded steel body and top-of-the-line features such as on-board weighing and tyre pressure monitoring, all integrated and controlled from a phone or tablet.

The emphasis is on safety, particularly when loading and unloading, so there is a sensor to measure tilt angle and sound an alarm if the tilt or trailer articulation is excessive. The app operates the roller sheeting, and provides screens for cameras overlooking the load area and the area behind the vehicle. As another safety measure, the rear underrun guard can be pivoted out of the way remotely.

This app also controls a tyre inflation system and the i-Level air suspension. Together these can also provide 'traction support' on difficult terrain. The hydraulically-operated tailgate and air suspension can be controlled together (and monitored on video) when using the tipper to feed asphaltting machines.



Right: Schmitz Cargobull's S.KI trailer app includes a 'Safe to Tip' display of tilt and trailer angles

Buffalod Logistics trailer

Buffalod's latest Gray & Adams trailers include aerodynamic features such as wide radius cappings and vortex generators, as well as Spraydown suppression flaps at the rear. This is a multiple-vane design claimed to capture water and dust while letting air pass through quickly.

"We have gone to round underrun bars and small light plates," says Buffalod's Graham Usher. "It's important we minimise the obstructions to airflow around the back end of the trailer to maximise fuel efficiency." And he plans to go further, with trials soon: "We've got a couple of ideas that we're looking at in the next few months that could reduce fuel consumption by a further 4%."