

# GOING LOW

Low-height trailers increase vertical loading potential by lowering the load floor, usually between the wheels. John Kendall reviews these special rigs

While the majority of freight for articulated vehicles can be carried on straight-frame trailers with a standard floor height, there will always be a need to carry some loads in a more specific way. This may be to answer particular operational requirements, or to deal with specific load-related issues. Some requirements may be driven by the overall height restriction of 4.0m that is common in most continental European countries, combined with the need to accommodate two loading decks or simply to maximise the available internal height. These may be less of an issue in the UK because of our more liberal approach to height restrictions, but inevitably, there is demand for specialist trailer designs that can maximise internal height.

It might be that this requirement can be accommodated using a step frame trailer and small-diameter wheels. Speaking of the platform heights that could be expected from using different frame and wheel size configurations,

Richard Owens, marketing manager at Don-Bur Trailers, said: "If you start with the highest floor height, this would actually be on a straight frame trailer. You can get double decks on straight frames on standard 22.5" super single tyres. You would be talking typically about a deck height there of probably about 1,200mm, which is not common, because typically, I think people like to go to a step frame.

"The next one down from there would be on 19.5" mini-singles, so 445/45s or 435/50 tyre profiles. Then you could get down to a floor height of about just over a metre, probably 1,050mm. To go lower, you would go down to a 19.5" twin tyre arrangement, so you would probably be able to get down to a floor height of about 930mm to 950mm. Then from there, you'd go down to a 17.5" twin, which you'd get down to the median height, about 880mm."

The drawback to running on twin tyres is the cost of maintenance. With a tri-axle trailer, that inevitably means 12 tyres just on the trailer. Owens believes that this means that those who need low

deck heights prefer 19.5" mini-single tyres instead: "You can, although it's rare, go down to a 17.5" or 19.5" single, but you can use wheel boxes. It would not need a stub axle, you can still use a single axle, but you can use wheel boxes to allow the wheel to go up inside the body slightly, so you can get your floor height down to about 700mm", says Owens.

"Then from there, you've got to go to independent suspension. So I dare say you can go as low as 250mm. You do have some additional challenges at 250mm, particularly with the rear fouling on the rear frame. So 350mm is a comfortable low height for an independent stub axle."

## INTERNAL DIMENSIONS

The lower the platform height, the more likely it becomes that the trailer wheels will intrude into the loading deck space as the top of the tyres rise above the platform height. That would also mean that a conventional axle would also intrude into the load space. To maintain a continuous load deck in these



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Peter Dougan



circumstances, wheel boxes would be necessary to cover the tyres; in addition, a conventional axle would have to be replaced with stub axles as there would be no room for the axle beams.

This brings in additional design complications. The trailer may need to be a monocoque design to handle the forces that would normally be handled by a conventional floor and axles. At the same time, independent trailer suspension would also be needed for the stub axles. Additional complication usually means additional cost, and in the case of the trailers this includes additional weight too.

#### EXAMPLES

Load requirements with a trailer of this type may not be for maximising space between multiple decks; there may also be a need to accommodate large loads. French trailer manufacturer Faymonville, known for its low loader and heavy haulage trailers, produces the Inloader, a design that was originally developed for transporting large glass panels in the 1970s. It was then later developed further to transport large pre-cast concrete castings.

In both cases, the trailer has been designed without a floor at all. Instead, pallets designed to accommodate the glass panels or concrete blocks form the floor of the trailer (pictured above, and at bottom of p29). Peter Dougan, director of Faymonville UK importer Traffco, explains: "These trailers can run so low to the ground because

there are no axle beams. But it also allows for glass and concrete sections to be loaded on to a waiting pallet so the trailer can collect the pallet when it returns, rather than having to wait for the trailer to arrive and then load. Especially in the pre-cast concrete market where they are turning out huge numbers of concrete sections a day, they can literally load them straight from the factory on to a pallet and then the trailer can arrive and take the load to site, thus reducing waiting times for cranes."

Faymonville offers hydraulic rams to restrain the load and an in-built cross-bracing system at the rear of the trailer is locked into position to provide additional structural rigidity.

For Faymonville, Dougan reckons that maintenance differs little from other trailers. He says: "At the end of the day, there is still an axle hub with wheel bearings and brakes, there are standard road electrics, hydraulics and air to deal with just like any conventional trailer."

The load securing rams do need regular testing, though.

While the low deck height on a multi-deck trailer offers the potential for greater loading capacity, it could also bring loading problems for the lowest deck (the interior of a Don-Bur double-deck trailer, with independent suspension, is pictured at left and top of p29). "If you're loading from a bay, you've then got to think, OK, that means I've got to have a tail lift", says Owens at Don-Bur. The problem then is that if loading is taking place from a bay, the tail lift cannot be fitted at the back of the trailer, which means it needs to be fitted further inside the trailer, taking up the space that a pallet might need.

"Let's say for instance that your internal tail-lift has the capacity to take two pallets, for argument's sake," says Owens, "So you're putting pallets on this tail-lift, loading it down to the bottom deck and you're putting everything down on the bottom deck." This is all very well until you have loaded up as far as the tail-lift and there are the last few pallets to load. "Then you think, hang on, I'm stumped here because I've got to get another couple of pallets, either at the bottom or at the top, and I've got a tail-lift that can only do one", says Owens. "Then you start thinking, does that mean I've got to have another tail-lift on the back of my other tail-lift?" The weight of the tail-lift will inevitably also reduce the potential payload.

While specialist low-height trailers bring benefits for specific jobs, operators would need to consider their benefits and drawbacks before choosing such a trailer. [IE](#)