

# The go-anywhere

**8x4 tippers are the mainstay of the UK's construction logistics industry. Peter Shakespeare reviews the latest options, trends and issues surrounding their specification**

Last year saw a record number of 8x4 chassis registrations, at over 5,000 units. Tipper industry sources suggest that 3,000 of these 8x4s were bodied as tippers, with the rest morphing into cement mixers, demountable skips and flatbed plant and machinery movers.

The UK is the largest market for the 8x4 tipper chassis in Europe. Costing around £125,000 bodied, they benefit from robust suspension and a double-drive rear bogie, providing good off- and on-road performance; in other words, the go-anywhere truck. Well-specced ones command decent residuals, with many living long second lives. On the other hand, payload is typically limited to 19 tonnes, they have relatively high running costs, and in some urban and rural environments they have manoeuvrability limitations.

The truck manufacturers have addressed the latter by bringing 8x2 chassis to market, including the DAF CF FAK, Volvo FM 8x2, Scania P Series 8x2, plus Renault, Iveco and MAN models. They have three steered axles, two at the front and a lifting tag axle at the rear, so are very manoeuvrable. A single drive and a lifting rear axle results in better turning circles, lower fuel consumption and reduced maintenance costs, but at



the expense of off-road capability. As a result, they tend to be used for 32-tonne rigid tankers, flatbeds and machinery movers, or as municipal grab tippers.

Another design comes from Volvo, which was one of the first manufacturers to introduce the tridem 8x4 chassis. A triple-axle bogie sits at the rear of the FM or FMX chassis comprising a standard 21-tonne double-drive bogie followed by a lifting and steering rear axle in a position where the conventional rear-most-driven axle would normally reside. They will turn on a sixpence, and offer good off-road performance, too. The majority of four-axle tipper powertrains are for 400bhp (or greater) engines mated to automated transmissions.

Above the powertrain, tipper body materials have moved towards a do-anything lightweight high carbon steel, although heavier duty Hardox is still popular with muckaway operators, according to tipper bodybuilder Thompson. It says that although the big aggregate companies still specify insulated aluminium alloy bodies, modern construction methods now allow steel bodies to be built in one piece, saving on weight and offering aerodynamic smooth sides. These are now the body of choice for the general tipper operator.

There has been a significant increase in numbers of tipper grab bodies, with several hundred being built last year.

# truck

Peter Smith, sales and marketing director at tipping gear manufacturer Edbro, says that while the vast majority of its sales are for CX14 and CX15 integrated front end rams, he has seen an increased demand for underfloor tipping gear. These systems see rams incorporated under the body rather than at the front. This saves space on a rigid chassis and, because of the typical two-ram design and a lower centre of gravity, they are more rigid and stable. Typically, stabilised underfloor Edbro TS systems are specified for heavier off-road tipping operations, because of the increased stability they offer. On the other hand, they are heavier; although front end systems can be as light as 450kg, underfloor systems can add up to 250kg on top of that.

Smith says: "Tipping is always a balance between weight and performance. Over the last 10 years, front-end ram weights have been reduced by around 160kg. The next step will be the use of new materials, such as aluminium alloys, to construct them from. But I would question whether operators will want to move away from what they know. There is a big demand currently for new tippers, which has resulted from a lack of investment over the last few years."

## RIGIDS OR TRAILERS?

Across the Channel, many tipper operators opt for artics over 8x4s. Capable of hauling higher payloads, their flexibility and lower running costs make them the tool of choice for tonnage work. At around £135,000 for a fully specced tractor and tipping trailer, some believe that, in the longer term, trailers can be the more cost-effective asset. As is the norm for the



waste management sector in the UK, the addition of a 6x4 tractor unit means that venturing off road with a trailer is less of a challenge than it would be with two driving wheels.

Schmitz Cargobull's UK technical director, Derek Skinner, is an advocate. He says: "You have more flexibility with a tipping trailer, get more payload and there isn't much difference in terms of manoeuvrability." He adds that while engine maintenance would remove an entire rigid vehicle from service, it would not stop an artic. He also claims that 8x4s are more expensive to run, don't have the longevity of a tipping trailer, and suffer from more downtime.

On the other side of the fence, Edbro's Peter Smith argues that 8x4s have the competitive edge over artics with a 6- or 7m trailer. This is because their upfront costs are slightly lower, their higher manoeuvrability pushes up productivity, while their load volume capacity can be almost the same. In addition, a four axle 32-tonne rigid (band E1) is cheaper to tax than a five axle 40-tonne artic (band G). Smith also contends that artics are not suitable to operate in many UK quarries and worksites, and are not as flexible in accommodating different types of work as 8x4 rigid tippers are.

Schmitz also sells tipper bodies for rigid vehicles. Skinner says: "We can offer replacement bodies, and ours

are built on their own sub-frame, with the hinge and ram points, so it can be quickly fitted directly on to the truck chassis. We now have dedicated people within the company who look after bodies and a dedicated factory that produces them, so it's something we are investing in, in a major way."

## DEVELOPMENTS IN SAFETY

Also seeing increasing levels of investment by customers are control systems that actuate and monitor the back of the tipper vehicle remotely. Cameras, tipping angles, tilt stability angles and tyre pressures can all be monitored via sensors that send data to smartphone apps. Automatic stability features prevent the body from being raised above an unsafe height if the system detects the possibility of roll-over, and it requires the driver to reposition the truck on to more level ground. Tailgates, sheeting systems and lift axles (on trailers) can all be operated from the driver's smartphone, rather than by pushbutton from the side of the truck.

Adds Derek Skinner: "The area of operator safety is where we see the biggest changes happening. Keeping the driver in the cab is becoming a prerequisite at quarries and on construction sites, and we are seeing a growing call for these remote-control systems, which can be offered as a factory fit option." 