

MILK RUN



Wincanton's two new tankers are just the latest in a long line of vehicles providing an essential service for UK consumers of milk and dairy products. But doing their daily rounds is no picnic, finds Will Dalrymple

For more than 90 years, 3PL Wincanton has offered a milk transport service, collecting it from farms around England and Wales and transporting it to dairies. Although that operation continues to be based at the company's operation in the Somerset town of the same name, since then the service has evolved hugely in terms of operation, vehicles and collection pumping technology, according to Wincanton technical manager Darren Dukes, who has maintained a role supporting milk transport since his early career.

During the 1980s, the company ran 17-tonne 4x2s carrying 9,000-litre tanks. Operations involved navigating narrow lanes to collect from many milk parlours from small producers, and Dukes recalls the vehicles lined up 'like a starting grid' in the morning, as they weren't allowed out on roads in the South West, in particular, before 8am.

Roll on to 2020, and things have changed. Earlier this autumn Wincanton took delivery of a pair of 5,100mm-wheelbase 8x2 Volvo rigids weighing in at 32t to do a similar job, but with double the capacity: 20,500 litre tanks. Now, doing the rounds involves fewer stops than before, most of which involve collecting up to 20,000 litres of milk at a time from various farms.

To get around, the chassis was specified with a rear-steer axle to improve manoeuvrability, good traction

and a high departure angle, so as not to ground the truck when navigating steep ramps and semi-offroad tracks.

Staying at the rear, the cabinets housing the pumping controls (pictured above) had been changed from fibreglass 10 years ago; in the latest trucks, they have been switched to stainless steel to improve their durability. And to reduce the risk of catching on obstacles, the design has been streamlined and profiled.

Likewise, the unrefrigerated but insulated tank that accepts the milk, which is stored at around 3°C, is covered with a polished, annealed stainless cladding, which has a variety of useful characteristics. The material is strong, easy to work with, reflects solar radiation, and provides a clean look appropriate for the food product that it is carrying, Dukes says.

COOL AND COLLECTED

Collection technologies have evolved too. Thirty years ago the truck used a vacuum system, in which a pump would evacuate the air in the vessel, and then pull the milk in. However, that had the disadvantage of not only being loud but also requiring the absolute integrity of the vessel - even the slightest leaks of seals on the tank could defeat the vacuum. In hot weather the oil in the hydraulic circuit would boil, such was the strain on the system.

Since then, Wincanton has worked

with Gardner Denver to develop a positive, high-speed pumping system, the OptiLoad. When the driver arrives on site and parks up the vehicle, he or she can power up the onboard hydraulic pump from a control panel mounted in the rear cabinet. (The pump is PTO-driven, which means that the start button actually switches on the truck's 424bhp Volvo's D11K Euro-VI Step D engine. Fuel-save technology starts and stops the engine to suit the requirements of the 48,000 l/hr pump. The intelligent pump drive ramps up to maximum power, prevents overspeed and compensates for cavitation. Also in the cabinet is a magnetic meter that records the quantity of milk taken. A sampling system that dispenses small quantities for testing also provides printed labels for sample pots.

The vehicle's cylindrical vessel, manufactured by Sayers Road Tankers, consists of a single compartment fitted with a central baffle to reduce the front-to-back surge of milk while in transit, which might otherwise make road handling difficult and stress the vessel mountings. Adds Dukes: "Sayers has been involved with us for many years; it understands our type of operation, and the environment. Going down extreme gradients, the milk pushes at the front of the tank; up hill, it pushes at the back, and it understands how strong the tank and mountings need to be; they are still flexible, and not too rigid."

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Because milk is pumped at atmospheric pressure, the tank design does not need to comply with the UK pressure regulations that might impose additional integrity requirements; nor does it need a pressure test. The tank is, however, food-grade. So vessel design complies with the industry standard Dairy Transport Assurance Scheme code of practice administered by trade body Dairy UK (see also www.is.gd/wiqugu).

A GOOD SCRUB

In-vessel washing is also controlled from the panel at the rear. That operation, however, is depot-based, and requires attaching a standalone pumping and chemical dosing unit. On the truck, the flow metering system opens valves to deliver the so-called cleaning in place (CIP) system. That feeds liquid into the tank through permanently-mounted 'dropper' pipes that hang down from the ceiling of the vessel terminating in spray balls. The configuration of the cleaning system was designed to cover every internal surface. The Wincanton technical manager compares the process to that of a dishwasher; both use a detergent wash as well as sequence of hot and cold water rinses for cleaning.

Drivers' daily checks not only include the truck chassis and cab, but also cover checking the controls in the cabinet and making sure that the tank, pumping elements and flow meter are clean and hygienic. Otherwise, periodic maintenance is carried out on the hydraulic system, and the flow meter is checked to make sure that there are no

leaks or product build-up. It is calibrated annually. The milk collection system's few replaceable parts, such as the hydraulic motor, would only be replaced at failure.

In addition to teams of technicians responsible for maintaining the vehicles, which are expected to travel 180,000km/year on an almost continuous basis, Wincanton also employs two milk collection system specialists. Based from the town of Wincanton, one engineer manages the vehicles' pumping equipment and flow meter, and another specialist with confined vessel entry tickets climbs in through the side access port to periodically examine the tankers' pressure safety relief valves and vacuum valves. They prevent unplanned downtime and defects arising from the tank or faulty valves. Unusual among hauliers, both roles are essential for this operation - 'We have had to do it ourselves', Dukes stated.

Wincanton's dairy collection fleet also includes 44t artic combinations (three-axle rear-steer trailers and three-axle tractors), three axle rigids equipped with three-axle drawbar trailers and three-axle 26t rigids. But the 32-tonners' patch is South Wales.

Dukes concludes: "Their duty is bouncy roads on Welsh farms. The environment, the terrain and the long distances to some producer sites that are semi-offroad. Whereas on the south coast you can go in on nice flat estate roads. In some places in west Wales you're driving in the middle of nowhere in quite mountainous areas; it's treacherous." **TE**

TANKER NEWS ROUND-UP

Tankquip has begun construction of a fleet of twenty-four 40m³ powder tankers for construction materials supplier EBS. According to company founder Dave Stanley, their design runs in opposition to the prevailing three-pot tanker design; it has two. This offers a weight reduction of at least 200kg, plus offering greater unloading speed and site manoeuvrability, he says. Second, a unique feature is that the discharge hose runs over the rear axles, rather than under, to increase ground clearance in case of delivery to a mortar silo on a building site, for example, where the hose might foul and be damaged. Rear bogie ground clearance on this design is 540mm, compared to 300mm at best. Third, the tanker bodybuilder has positioned all of the operator controls at the rear of the vehicle, including for the pinch valves responsible for discharge, for the trailer, an emergency stop, and an axle weight gauge, another Tankquip speciality.

UK tanker builders are currently quoting lead times of over 12 months, according to tank and monitoring equipment supplier Alpeco. Rather than wait that long, one fuel supplier has found an alternative supplier in Spanish tanker builder Cisternas COBO. It offered Local Fuel operations director David Mack a four-month delivery window to supply six four- and five-compartment tanks mounted on DAF LF and CF rigid chassis. They are equipped with Alpeco equipment featuring MF400NV metering systems with CheckMate control module, truck III electronic register, temperature compensation, Actiman manifold, product return and radio remote control.