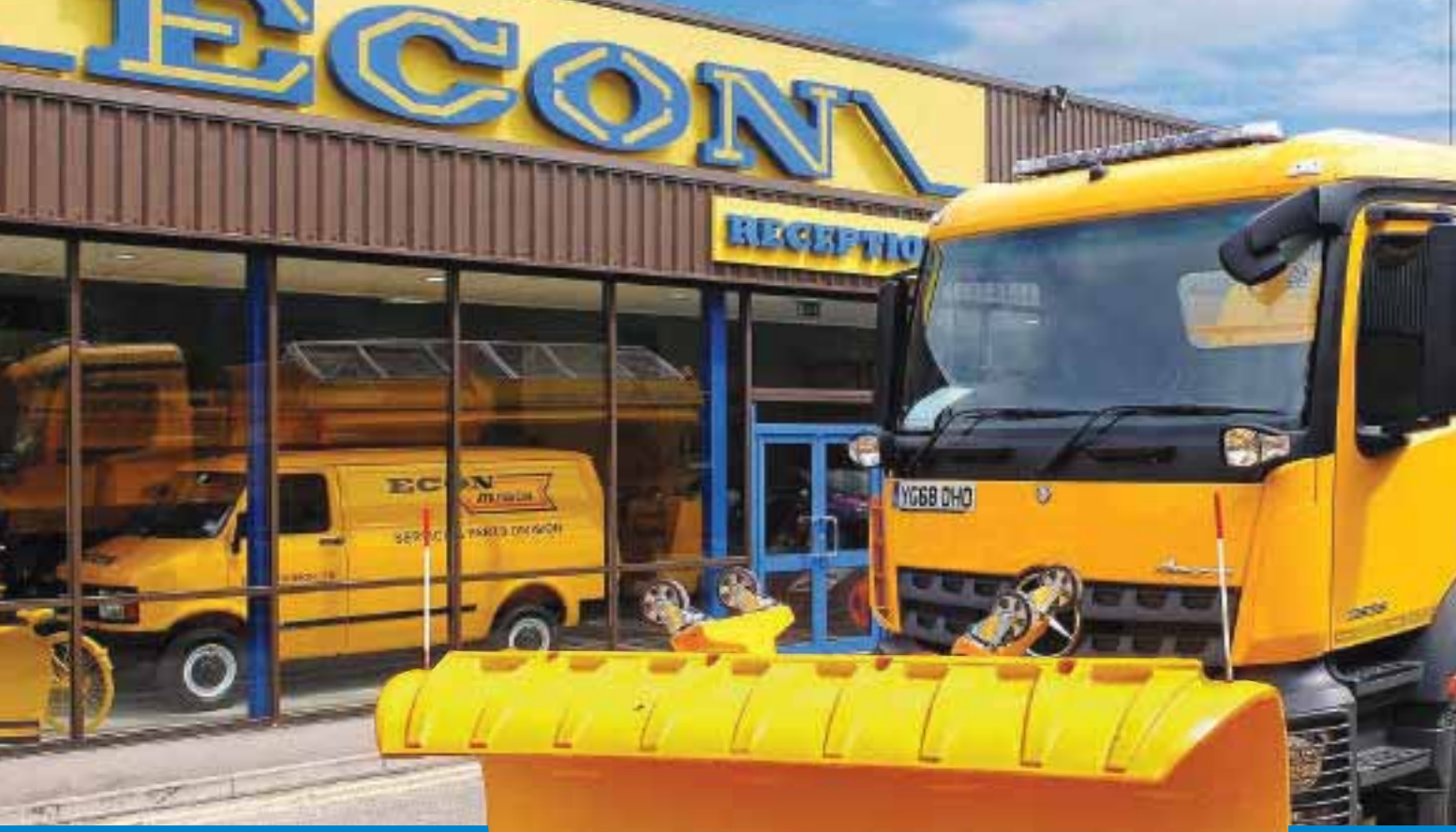


Minimising winter travel

Fiftieth anniversary finds road gritter manufacturer going from strength to strength

If you find yourself driving behind a gritter or salt spreader in the UK this winter, there is an 80% chance it was bought or hired from Econ Engineering by the local council or highways contractor. The company is the largest British manufacturer of such vehicles, producing 360 units a year at its 88,000ft² factory, which opened in 1980 on Boroughbridge Road in Ripon, North Yorkshire. Additionally, it operates a growing hire fleet (currently more than 800 units), which has boosted annual turnover to over £34 million, making the firm a major contributor to the local economy.

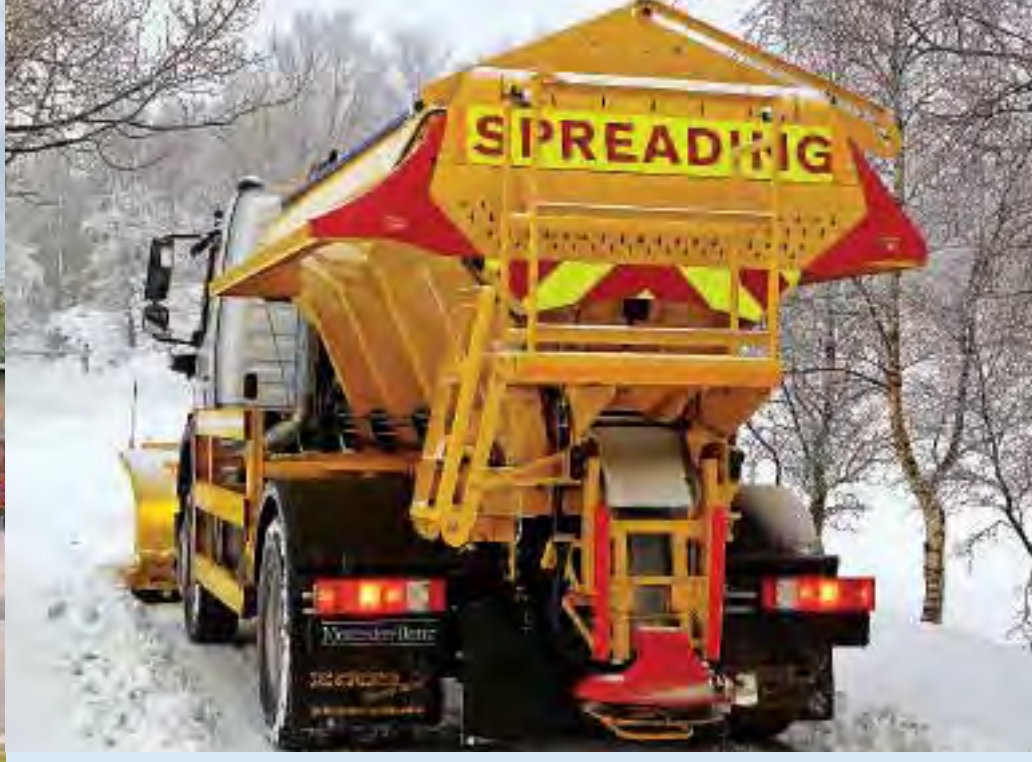
In fact, in its 50th year, Econ is experiencing an unprecedented order book, partly fuelled by recent harsher winters but also due to the multi-body products that allow customers to use one chassis for multiple tasks. The 220-employee company's dominance in the market is down to the premium quality of its products, with all design and manufacture carried out in-house, including painting of components. Many parts are made on sheet metal processing machinery supplied by the Swiss company Bystronic (www.bystronic.com), which has a UK subsidiary in Coventry and has been supplying equipment to Econ for nearly a third of its 50-year existence.

The initial credit for this success story goes to the late Bill Lupton, who single-handedly started a business towards the end of the 1950s in a barn on his family's farm to make flail mowers and hedge trimmers that would cut verges and hedgerows more efficiently. Exceptionally cold and freezing weather during the winter of 1962/63 brought England to a standstill, with many areas cut off for weeks. That inspired Mr Lupton to put his mind to developing the first salt-spreading vehicles, which would "keep the country moving and the wheels of industry turning".

To manufacture them, he started Econ Engineering in the autumn of 1969 on an old brewery site in Ripon. By then, the M1 motorway had opened, as had sections of the M2, M4 and M6; local councils (notably Lancashire and Westmorland) were expressing considerable interest in winter maintenance operations — such as salt spreading and gritting — to make driving safer.

Fast-forward 34 years, and 2003 saw the second generation of Luptons — Jonathan and Andrew — take over running the company. They were instrumental in developing contract hire for gritters and snowploughs at a time when public spending cuts were making the purchase of new equipment difficult. Underlining their commitment to building up this side of the business, in 2005 they increased the fleet size through the acquisition of a major competitor — Municipal Hire Services.

It was in the early 2000s that the first laser machine — supplied by Bystronic UK — replaced a turret punch press and a plasma profile



woes

cutter for processing most of the components made from mild-steel plate (in addition to being used in the manufacture of gritting and salt-spreading equipment, various components also find their way into snowploughs, as well as bodies for highway maintenance and road patching that Econ mounts onto lorry chassis).

This first laser machine, a ByStar 4020 with a 4kW CO_2 power source, greatly increased production efficiency and component accuracy. Sheet metal up to 4 × 2m could be processed on the machine, but its 4.4kW and then 6kW successors were able to accept sheet up to 6.5 × 2m wide, although 1,830mm-wide stock is used because Econ's sheet is cut from coil produced in Europe to meet the company's required steel specifications and that is the maximum size readily available in the UK.

The current Bystronic laser machine, which

was installed in 2014, works 24/7 converting up to 35 tonnes of steel a week into 87,000 different components produced in batch sizes ranging from five- to 30-off and to an accuracy in some cases down to ±0.5mm. With such a large variety of part numbers, extensive use is made of modern MRP (manufacturing resource planning) software, as well as colour coding of components on the shopfloor according to their material type, thickness and product type.

Bystronic's own Bysoft off-line programming software automatically nests the components for maximum sheet utilisation. It then produces the cutting plans, in this case up to 14 days in advance of scheduled production to assist the ordering of material — and monitors the manufacturing processes in real time. The effectiveness of these procedures is evidenced by an OEE (overall equipment effectiveness) of 63%; this represents the proportion of time the laser is actually cutting metal and is above what is considered average.

Folding requirements

More than 70% of the output from the laser machine is folded. The press operators create folding programs for the three Bystronic press brakes on site directly at the machine controls. Two of these — installed about 10 years ago, and rated at 320 tonnes/4.1m and 150 tonnes/3.1m — are positioned side by side, allowing them to be used either independently or in tandem for bending very large components.

The third press brake is an Xpert 40 tonne/1m machine; installed last year, it is used for bending smaller parts more efficiently and hence cost-effectively — plus it can be easily moved around the factory to where it is most needed. Other equipment in use from Bystronic includes a VR 10×4000 jobbing guillotine and a belt grinder from the German company Weber, for which Bystronic is the UK sales agent. The latter machine is used for removing sharp edges from laser-cut components and to descale them ready for shot blasting and painting. Every item of production equipment in the metal preparation area — except for the sawing machines — has been supplied by Bystronic.

Colin Trewhitt, who is the factory manager and has worked at Econ for over 30 years, said: "When we bought the first Bystronic laser cutter back in 2003, we spent a lot of time reviewing the alternatives on the market. We drew up a check sheet detailing everything from cost of ownership to production output and service support. Of the three potential suppliers on our shortlist, Bystronic came out on top — and we have stayed with them ever since."

Jonathan Lupton, joint managing director, added: "We have always tried to innovate and strive for excellence, and nowhere is that more apparent than in our use of the laser to cut steel in our body shop. Despite the machine representing a considerable expense at the outset, it was another example of how we always lead the way in our industry. The investment has more than paid off in terms of higher production output, while improved accuracy has almost eliminated fit-up during assembly and cuts costs further.

"We have gone from strength to strength by focusing not only on quality but also on the needs of our customers. That is why we have a UK-wide network of depots for servicing and recalibrating our equipment in the field, including a new one that opened recently in Alloa, in the Central Lowlands of Scotland; another is due to open in Cardiff in spring 2020."

Innovation is the 'watchword' at Econ. The company was the first (in 1989) to invent the QCB (quick-change body) system, which allows a single chassis to have multiple applications; for example, by the addition of an asphalt hot box for road repairs or for use as a tipper, crane or gulley emptier. QCB reduces capital investment by a council, which no longer needs multiple vehicles to satisfy a range of year-round tasks.

A recent Econ invention was its 'Spargo system', which controls grit or salt spray and width patterns from the cab, automatically optimising the amount of product used and hence saving cost as well as protecting the road surface. It also provides one-touch control for lowering the snow plough, turning on the gritter's beacon bar and performing other functions, making the driver's tasks easier and less tiring. For greater efficiency, it is connected to the vehicle's GPS to help plot the most effective route.

New technology in the company's sights includes driverless vehicles and liquid de-icers that will be less harmful to a road surface.