



FINNISH FINISHERS

Eoghan Daly visits the ambassador of the Gradall excavator concept in Europe

Designed in America during WWII (see panel) as one solution to the growing labour shortage, Gradall excavators are a truly unique product. In addition to the boom telescoping in and out, it also rotates around its own axis, providing a working envelope without equal. In addition they are offered either as a truck-mounted machine, or on a conventional tracked undercarriage, or as a wheeled

excavator together with Osmo Yliniemi. The fledgling firm decided to specialise in finishing works, which was the basis for purchasing their first Gradall, the invoice for which is proudly displayed in the foyer at the firm's HQ.

Four decades later finishing works, particularly those associated with road construction projects, are still at the heart of the firm's activities, both in Finland and increasingly across the border in Russia.

The use of Gradall excavators is viewed as a key reason for the firm's tremendous growth over the years, which includes becoming the dealer for these excavators in Finland, Russia and the Baltic States.

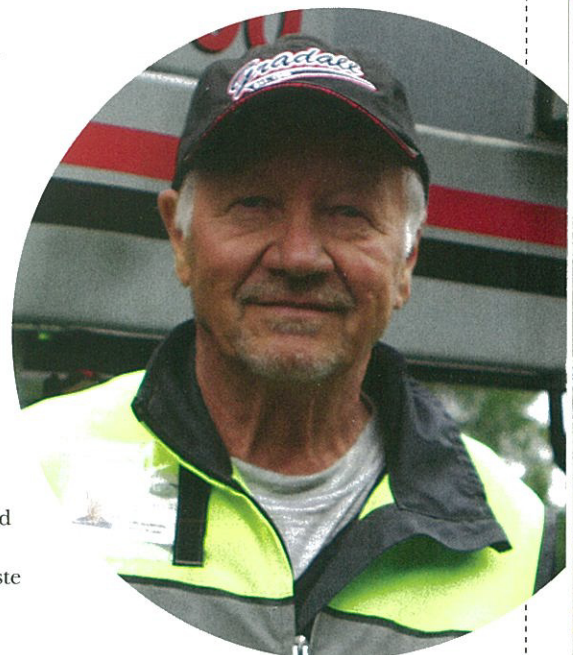
Today Hyvinkaan Tieluiska has a turnover of €22m and has diversified

into a number of complementary niche sectors, including a very successful green waste recycling division using materials won from their construction, ground works and civil engineering interests. In turn, this has led the firm into the complementary business of seeding and maintaining road verges,

“ON A TYPICAL DAY'S OPERATION A MACHINE LIKE THIS WITH THE TWO OPERATORS CAN SPREAD AND FINISH 10,000 SQUARE METRES”

excavator. It's necessary to visit contractor and dealer Hyvinkaan Tieluiska in Finland to fully appreciate the versatility of the design of what is a very rare machine in Europe.

Based near the town of Hyvinkaa 50km north of Helsinki, Hyvinkaan Tieluiska was founded in 1974 by Matti, Valto and Vilho Tikkanen



→ Company co-founder Matti Tikkanen (73) has given up office life to go back to work as an operator on an old-school truck-mounted XL4100.



Above, below and right inset: This XL4100III is equipped with a tilt-rotator and is mounted on a MOL crane base unit that has been converted to right-hand drive.



"THE XL4300II WITH AUTO-STEER REPRESENTS A PEAK IN THE DEVELOPMENT OF THE WHEELED EXCAVATOR CONCEPT"



Above and below: Wheeled Gradall excavators equipped with a tilt-rotator result in a machine with a phenomenal working envelope.



→ a sector that has seen rapid growth in recent years.

Even though the original founders of the business have taken a step back from their management duties, the company is still very much a family-run concern with the baton of key management roles now passed to Osmo Yliniemi's sons Riku and Timo, together with Aarne, Vikki and Markku Hurskainen.

Riku Yliniemi said, "The Gradall concept may be the same when it comes to the design of the boom and the unique capabilities this gives, but we have seen much change in the machines over the years away from this proven area. The most regular change is the differing engine suppliers, as Gradall works to achieve emissions standards. Meanwhile, the overall refinement of the machines has also changed for the better over the years, offering the highest standard of operator comfort and convenience."

However, as you would expect from a Scandinavian contractor and dealer, Hyvinkaan Tieluiska have taken the

concept and further refined it. This includes GPS machine control systems, but somewhat surprisingly on a machine with a bucket that can be rotated, tilt-rotators.

Riku continued, "The degree of movement offered by a Gradall boom is far superior to a conventional excavator boom, but when fitted with a tilt rotator is automatically taken to a whole new level. Even though this requires a very high level of operator skill to utilise to its full extent, we have many long-serving and experienced operators who are at one with the system. Which explains the phenomenal work rates they can achieve in what would otherwise be slow and tedious work."

TRUCK-MOUNTED

The oldest Gradall on the fleet is a 1976 truck-mounted XL4100 model operated by company co-founder Matti Tikkanen (73), ably assisted by his young driver Juho Ronkko. Matti has 52 years working with Gradall excavators and is probably the most experienced operator of these machines in the world.

We caught up with Matti and Juho on a major road-widening project for Skanska in the south-east of Finland, where they were conducting finishing works on a ground water channel that had been excavated along the verge. A long-reach Komatsu PC240-7 fitted with an Engcon tilt-rotator had helped to line the ditch with a geotextile material, then using a grading bucket had spread a layer of sand.

The Gradall's task was to finish the muck-shifting element of the job by grading a layer of recycled topsoil across the entire area. The soil had been tipped in stockpiles along the route and the first pass of the Gradall was simply to roughly spread the material across a given section, before conducting the final grading works.

With Matti in the excavator's cab and Juho driving the truck on the reassuringly solid road surface, witnessing the Gradall in operation is a most awe-inspiring spectacle. As the truck drives up and down the road at an impressively lively pace, the experience and quick reflexes of Matti achieves a silk-like finish at an astounding speed.

Riku commented, "On a typical day's operation a machine like this with the two operators can spread and finish 10,000 square metres, which means it is a most viable approach to a task like this."

"Even though this machine is our oldest, it is still capable of such a high work rate, which

shows the kind of service machines like these can return when they are responsibly maintained over their life. We have seen the Gradall machines prove themselves over long-term work and with the design of boom they use, very rarely give any problems, as mechanically and structurally they are both strong and simple."

However, it must be recognised that much of this particular machine's continued viability, together with the speed and quality of the work, is down to Matti's unrivalled experience and his preference to remain loyal to traditional working approaches.

On another part of this road-widening project a second truck-mounted Gradall provides a better indication of what is possible with these machines and the engineering capability of Hyvinkaan Tieluiska. This unit is a more recent generation XL4100III model, mounted on a 6x4 Belgian-built MOL mobile crane carrier, helping to construct the road base.

Again working from the existing carriageway, the adjoining strip of ground had already been excavated to formation level. The Gradall's task was to spread and accurately grade a layer of stone, immense volumes of which were being tipped in front of it by a fleet of trucks hauling the material from a local quarry. Obviously, this is a far more demanding task than dealing with topsoil. In true

→ Scandinavian style, this unit has been equipped with a tilt-rotator and a Novatron GPS control system.

As Riku explained, "Almost all our Gradall machines are using Engcon tilt-rotators now, which gives an incredible level of movement in addition to the capabilities of the base machine's rotating boom. The versatility this gives is just amazing and helps us get the maximum level of productivity from the machines."

Sharpe-eyed readers will have noticed that the MOL carrier is a right-hand drive model, but it did not leave the factory like this. Hyvinkaan Tieluiska decided that in the interests of better co-ordination between driver and operator they would move the cab to the other side of the truck, putting the driver adjacent to the verge. This was a considerable undertaking, particularly moving the steering column and other controls, but it has been worth the effort and is viewed as a most successful conversion.

However, it still requires two people to operate it. Hyvinkaan Tieluiska has plans to

further modify this unit, allowing the truck to be controlled from the cab of the excavator to allow it to be operated by one person.

RUBBER DUCKS

Gradall excavators were originally developed to be truck-mounted and clearly such configurations still have an important role to play, however the majority of the units on the Hyvinkaan Tieluiska fleet are wheeled excavators.

We also visited a 2007 Gradall XL4300II wheeled machine on a long-term project to construct a huge truck park on the main route to St. Petersburg, just a few yards from the Russian border. Again, this machine had been equipped with a Novatron GPS system and a tilt-rotator. It had also been fitted with a 2.5m boom extension, to provide an impressive overall reach of 12.5m to conduct finishing works.

This unit is powered by a John Deere engine and uses ZF axles. It was delivering impressive work rates thanks to its speed of operation and its reach, and remained very stable without the

need for outriggers. Also contributing to its productivity, and another indication of Hyvinkaan Tieluiska's engineering capability, it featured an auto-steer system linked to the GPS box. As such the XL4300II with auto-steer represents a peak in the development of the wheeled excavator concept.

Although the core activity of both Gradalls and Hyvinkaan Tieluiska is finishing works, the ability of the machines to perform a range of normal excavation activities should not be underestimated. We visited the site of the development of a huge €40m Volvo truck and bus regional service centre near Helsinki airport. On this site Tieluiska had been appointed as the main groundworks subbie to main contractor EKE.

Naturally, a number of Gradalls had been deployed on this project, but the star of the show was a XL4300III wheeled unit, which had been on site since the start of the project and will be one of the last machines to leave. Its capabilities really came into their own as the design called for a significant number of gabions, and the Gradall proved an ideal

method to fill these with stone. However, it was used in a range of tasks, including those involving the installation of services and preparation for laying concrete paths, roadways and car parks.

TRACKED EXCAVATORS

As an illustration of a tracked Gradall, we visited an XL4200II model working on a landfill cell-capping project just outside Helsinki. Part of a two-year project, the 20-hectare site is being transformed into a public amenity area.

Among its roles on this job the Gradall is levelling a 5cm layer of used road grit, a material that has been recycled following the thaw of the winter ice and snow. This unusual material provides the ideal cushion for laying a geotextile membrane, on top of which the capping layer will be placed.

On another site an XL5200III model was working on yet another road construction project, placing material to form a perfectly level surface. The operator demonstrated a neat little trick ideally suited to the Gradall

boom. Instead of the long-term maintenance cost and time spent tracking such material in to seal it, he was applying downward pressure of the boom as the telescopic section was being retracted. This particular 25-tonne tracked Gradall is over 20 years old and has recorded significant hours. Cummins-powered, it remains in exemplary mechanical condition.

SNOW & SERVICE

The Finnish climate is such that the vast majority of construction and muck-shifting jobs take place in a seven- to eight-month window, and machines are parked up over the winter months.

Not so for wheeled versions of Gradall excavators, as Riku explains, "Once the ground freezes and we get the first snow, we must stop construction work until the following spring. This means three to four months per year are spent away from site work."

"However, the Gradall machines are more adaptable than most and work through the winter on snow clearance in car parks throughout Helsinki. Using the versatile boom

action plus the Engcon to excavate around the parked cars, the snow is then loaded into trucks and dumped into the sea."

Riku concluded by saying, "Our service division has provided after-sales support for Gradall machines throughout Europe, the Far East, Asia and even South America. The machines are working on a range of applications, many of which are very specialised in nature. These units undergo comprehensive modification in our own workshops to meet customer demands. These include machines working in steel mills and in underground mine tunnels. We have also supplied machines to the coal industry, where we they have recorded over 30,000 hours in very harsh working conditions."

As an example of an innovative product taken to new heights by a Scandinavian contractor turned dealer, there can be few, if any, better examples than Hyvinkaan Tieluiska. However, it has to be recognised that part of their success is due to their team of highly skilled and experienced, long-serving operators.

GRADALL BRIEF HISTORY

Based in Ohio, brothers Ray and Koop Ferwerda initially developed the Gradall excavator concept to make up for labour shortages at the beginning of WWII. In 1945 the business was acquired by Warner & Swasey, and the first production machines were made available for sale to the public a year later. In 1950 a new factory was established at New Philadelphia in Ohio, where the business remains to this day.

Over the following decades Gradall was owned by a wide variety of companies, and their current owner, the Texas-based Alamo Group, acquired the firm in 2006. The Alamo Group may not be a familiar name to many in Europe, but it has a wide variety of machinery interests particularly in the agricultural industry, including Bomford Turner, Kellands/Multidrive, Spearhead, Twose and McConnel.



"GRADALL MACHINES ARE MORE ADAPTABLE THAN MOST AND WORK THROUGH THE WINTER ON SNOW CLEARANCE"



Tracked Gradalls, particularly those equipped with a tilt-rotator and a GPS system, are productive and highly accurate muck-shifters.