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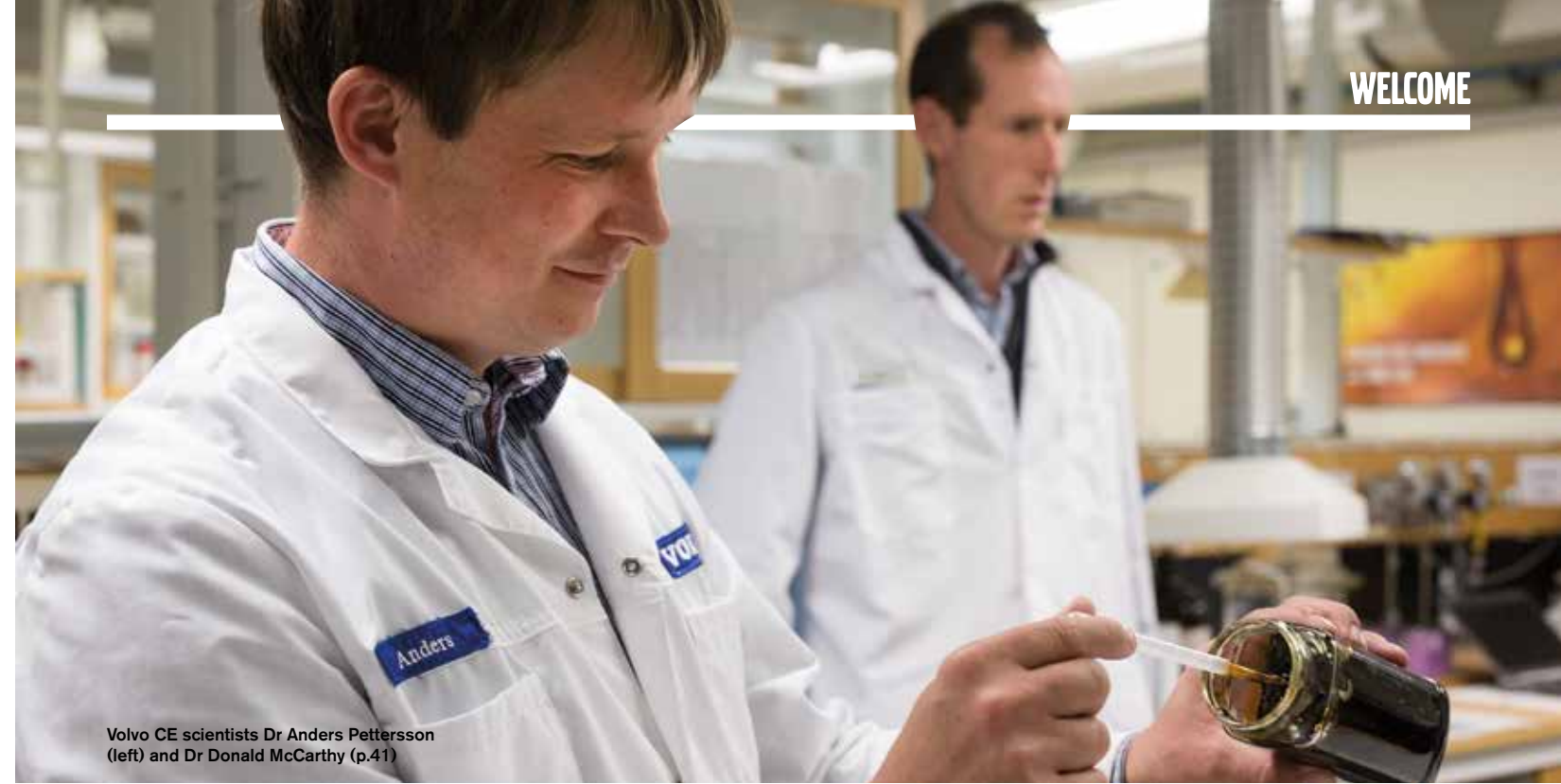
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Volvo Construction Equipment



WELCOME



Volvo CE scientists Dr Anders Pettersson (left) and Dr Donald McCarthy (p.41)



Custom-built for contented customers

Two major articles in this issue feature Volvo machines that have been customized for clients working under tough conditions or in extreme weather. Volvo CE's Special Application Solutions team is relatively new – only four years old – yet it is already making an impact on a global scale.

The team reacted swiftly to requests from New Zealand for purpose-built excavators for the country's logging industry (p.10). A delighted Volvo dealer says his clients have been given exactly what they asked for and the two models currently available – EC250DL and EC300DL tracked forestry carriers – are attracting widespread attention in that part of the world. In the Netherlands, where flood control and defense are of utmost importance, Volvo CE has also come to the rescue (p.36) with a number of customized machines working to strengthen flood barriers.

Volvo CE doesn't only manufacture construction equipment – our cutting-edge research, development and testing includes components such as lubricants and we visit one of our laboratories where scientists are busy developing Volvo CE's own-brand oils and lubricants (p.41).

The Volvo Group is at the forefront of sustainable production, and Volvo CE continues to lead the way on climate action within the construction industry with an innovative partnership with the World Wide Fund for Nature on the reduction of emissions from products and production. Volvo CE President Martin Weissburg is interviewed about climate action (p.24) and what the company is doing to meet the challenges faced by industry.

Among our stories from different parts of the world, satisfied customers (p.34) attest to the value of dealing with Volvo Financial Services (VFS). Many customers need a loan or lease when buying construction equipment, which is where the involvement of VFS comes in useful – our article on page 32 explains how it works.

All of this content, complemented by video reports and extra photography, is available on the *Spirit* website and on the free *Spirit* app for mobile phones and tablets. And, of course, the print version is available in 13 languages. If you are not already a subscriber, the website has details of how to receive your free copy delivered direct to your door. ☞

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THORSTEN POSZWA
Global Director
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Volvo Construction Equipment

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One of six custom-built Volvo excavators owned by de Vries & van de Wiel working on Dutch flood barriers © Erik Luntang

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Customized Volvo excavators are deployed to strengthen the country's flood protection



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BURSTING WITH ENERGY

Meet the man in charge of putting Volvo CE's energy-reduction measures into practice

by Cathy Smith

As a young teenager in his garage at home in Helsingborg in the far south of Sweden Johan Wollin realized just how much he liked getting his hands dirty. At the age of 14, Wollin was pulling apart mopeds and motorbikes trying to work out how to make them go faster.

"At one point, I had three motorbikes but was still too young to have a license," he remembers.

Meeting him in smart suit and tie it is hard to imagine the teenager in an oil-stained T-shirt. Currently responsible for, among other things, environmental care within Volvo Construction Equipment's factories, Wollin says it was a natural progression to study mechanical engineering at university. He began his studies in Trollhättan in Sweden – the home of Saab – before moving, in 1996, to Coventry in the UK, birthplace of the British car industry, which he says he loved.

HERITAGE

"You could feel the really strong automotive heritage in Coventry with Jaguar and Rover just down the road and all the old names everywhere such as Singer Motors and Triumph."

He laughs when he remembers how as a student in the UK he bought, not a British car, but a second-hand Volvo 440 from a farmer. "I think he must have used it for transporting animals. It never stopped smelling bad – I was still finding straw under the seats when I sold it ten years later," he says.

That faithful car took him back to Gothenburg in 2000 to work for Volvo Cars as an engine development engineer. →



**WE ARE TRUE TO
OUR CORE VALUES**



Five years in Sweden were followed by time in China and France working for Autoliv, the Swedish specialists in automotive safety systems, and then a spell at Toyota in Brussels.

GREEN ROOTS

In 2012, Wollin returned to his roots and joined Volvo CE, based in Brussels. He now has a number of titles: Global Director Industrial/Manufacturing Engineering as well as Global Director Health & Safety and Environmental Care.

It is the environmental part of his job which links him to his Coventry days where his PhD focused on improving the airflow inside catalytic converters – Wollin's first foray into environmental issues and something he has related to ever since.

"If we go above two degrees of global warming it will have profound consequences for a lot of people in the world, so we need to do our part in making sure that doesn't happen," he says.

Wollin is particularly proud of Volvo's partnership with the World Wide Fund for Nature's Climate Savers challenge: "I think Volvo does a very good job in terms of environmental care; we are true to our core values and it doesn't feel like a marketing gimmick."

Wollin is leading a major project within Volvo CE to improve energy efficiency by, among other things, reducing idle electricity use – that is electricity consumed in factory 'down' times such as evenings and weekends.

"It is just a matter of turning things off and of changing behavior and culture. When you leave your home you do not leave your TV on," he says. "In our plants even if you cannot turn some machines off completely you

can turn the hydraulic system off, for instance, and just leave a control system up and running."

ILLUMINATING STRATEGY

With WWF auditing the results of the initiative, Wollin says it has really caused Volvo CE to "raise its game". Some Volvo plants were effectively wasting 40% of their electricity by leaving appliances and machines switched on. The target is less than 15% relative idle electricity use – some of the eight biggest plants around the world being monitored have already surpassed that.

Wollin highlights South Korea and Brazil for doing "a fantastic job" with values well below 10%. Looking at a graph of electricity use at the Volvo CE plant in South Korea, he points to a significant dip in the middle of the day.

"That's when they are switching off the lights while they go for lunch. These guys have really committed to this."

And of course it makes good business sense. This is a self-funding strategy – savings on electricity are expected to be in the region of US\$1 million a year which can then be reinvested in the second phase of the Climate Savers initiative which is to reduce energy use in production. The ultimate goal is to achieve CO₂ neutrality in all Volvo CE plants.

Johan Wollin is up for the challenge and quotes former Volvo President and CEO Pehr G. Gyllenhammar: "As he said in 1972, when it comes to managing climate change we are part of the problem – but we are also part of the solution." ☞

Visit the *Spirit* website or download the *Spirit* app to see the video interview

MADE TO MEASURE

Custom-built Volvo excavators are helping drive a vital part of the New Zealand economy →

by Jeff Rogers



Photographs by David Alexander



The new forestry carriers are attracting growing interest



Button Logging's Rory Button (left) with TransDiesel's Mark Keatley

The forested Canterbury high country of New Zealand is no place for the faint-hearted, especially during the winter months of June, July and August when frost and snow can force a drop in temperature to -20°C . This rugged landscape, with the mountain range of the Southern Alps that extends along much of the length of New Zealand's South Island as a backdrop, grows pine trees for export.

Key to harvesting this crop is the right equipment, and Volvo CE is now meeting customer demand by supplying forestry carriers that are specifically designed for the tough conditions in this area, also known by its Maori name *Aotearoa*.

With four machines in the range already in operation in New Zealand and another two on their way, two versions are currently available to customers – the EC250DL and the heavier EC300DL tracked forestry carriers.

Working hundreds of hectares in Canterbury's Malvern Hills on the east coast of the South Island, Button Logging's Rory Button operates one of the new EC300DL forestry carriers, which landed ready to go and was put to work immediately on arrival.

TOP GEAR

"Forestry is not the kindest industry in New Zealand. The gear has to be pretty tough for our environment," he says.

"Logging is a lot different here than, say, in Europe. The wood is much bigger and we use tracked machines more."

The machines have been brought to market by Volvo CE's Special Application Solutions team, led by commercial projects manager Peter Lam. New Zealand's Volvo CE distributor TransDiesel, with its head office in Christchurch, was instrumental in lobbying for the purpose-built excavator.

TransDiesel got exactly what it asked for and marketing manager Mark Keatley is delighted with the result. "We are just a small market down here," he says, "but we made a lot of noise and Volvo sent its team."

The Volvo team visited a variety of logging operations to be able to develop the purpose-built forestry machine designed for New Zealand's demanding conditions.

The back country terrain is muddy with plenty of boulders ready to damage equipment. The forestry carriers feature a high and wide undercarriage with a special heavy-duty underbelly guard and full-length track guards. Among the machine's plus points are stronger engine hood and side panels and reinforced fuel and hydraulic tanks. A specially designed and reinforced cabin plus three emergency exits from the cab – the rear window, the side door, and the roof hatch – are among a number of features that enhance operator safety.

The machines are fitted with a Volvo quick hitch, so they can work with a range of attachments, such as buckets or →



June, July and August are winter months here

grapples depending on the task on hand. “It can harvest, process, load, stump harvest, trench, plant, and build roads,” says Keatley.

TRACKING

“The Volvo is one of the best I’ve driven,” says Button. “It’s really nice to operate and has a fast boom action, which means it’s much more efficient.” He can keep an eye on what is happening at the rear and right-rear blind spot on a screen taking feeds from two on-board cameras.

The excavator is also fitted with a CareTrack telematics system which not only means the company knows the machine’s geographical location, but it can also monitor how efficiently the operator is using the machine, including fuel consumption and operator hours. It also alerts the operator and sends messages back to TransDiesel when the excavator is due for a service.

The country’s third largest industry after agriculture and tourism, forestry is a vital part of the New Zealand economy, bringing in more than NZ\$1.6 billion a year (US\$1.1 billion; €987 million). Native species such as totara and kauri, some of which are hundreds of years old and tourist attractions, are generally off-limit to harvesters.

But almost 1.8 million hectares – much of which is Monterey pine or New Zealand pine – are available to loggers. Douglas fir and various cypress are and eucalyptus species are also grown for domestic and export markets. Just under half of the harvested logs and processed timber heads overseas, mainly to Australia, China, Japan, the Republic of Korea, the United States, Indonesia and India.

As well as logs, the exports include sawn timber, panels, wood chips, pulp and paper, and other products.

SAFE AND SOUND

Dave Button, Rory’s father and co-owner of the family business, loves his company’s latest acquisition and was keen to get behind the controls as soon as it arrived. “It’s going really well,” he says. “It works fast and is good on fuel, too.” Economy and fuel efficiency are important elements for

Button Logging which has three logging crews and a road crew working at different sites in Canterbury. Christchurch is in the process of being rebuilt after the devastating earthquakes of 2011 which wrecked the city, killing 185 people and leaving thousands homeless.

To its new owner’s delight, the machine needed no modification to its hydraulics, tracks or cab – the latter virtually destruction-proof, vital in an industry where the accident rate is a matter of controversy. A high fatality rate – 10 deaths in 2013 – has put the industry under the spotlight, so the safety features of the Volvo EC300DL, including the specially designed, ROPS-certified cab with 31mm reinforced front screen glass, are being welcomed by New Zealand’s forestry industry.

A new Forest Industry Safety Council (FISC) is working on improvements such as better training and equipment. It is already paying dividends with just one fatality last year and serious harm notifications down by 60%. With the council pushing hard for safer gear, the new Volvo, with its extra strong purpose-built cab, is attracting growing interest. ▣

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THE VOLVO IS ONE OF THE BEST I’VE DRIVEN

NO TIME TO WASTE

The Laogang landfill turns gas from waste into energy, and is one of the largest projects of its kind in Asia

by Michele Traverso

The roar of a Lufthansa A380 at full power taking off from Shanghai's Pudong International Airport interrupts the peace and quiet of the countryside. Apart from the noise of the planes, the only other disturbance on the muddy road around the perimeter of the neighboring Laogang landfill comes from crickets and birds.

Laogang operations manager Sun Yan Feng is carrying out his daily inspection to ensure that on-site activities run as smoothly as possible. In the distance, half a dozen different machines are busy flattening a large but not high hill, partly covered in black tarpaulin. The site, which resembles the set of a dystopian science fiction film, is the resting place

for as much as a third of Shanghai's municipal daily waste production. The city is home to more than 23 million people, so the job done by the Laogang landfill is no mean feat. Surprisingly, there is no smell.

A Volvo A40D articulated hauler heading towards Sun is aiming for a pile of freshly dug soil bordering the edge of the landfill. For reasons of hygiene, the soil is used to cover the trash: it traps the smell, avoids the proliferation of insects and other pests, and fosters the hypoxic environment needed to produce the gas to generate electricity. "We cover the garbage with a 20cm layer of soil," explains Sun, before giving a simple description of the continuous process of

feeding the landfill: "Garbage, add soil, remove the soil, add garbage, add soil; then remove the soil, and add garbage."

LIFE'S WORK

The Laogang landfill, 60km from Shanghai city center, is operated by Shanghai Old Port Garbage Disposal Co Ltd, a joint venture between the French company Veolia, which owns a 60% stake, and the municipal government's investment arm. The facility's original life expectancy was 45 years, but following an increase of 8,000 tonnes in its daily capacity, it is expected to

operate for at least another decade, until peaking at 80 million cubic meters.

As with many infrastructure projects in China, its defining statistics are mind-boggling. At 4.2km long and 800m wide, it covers a total area of 361 hectares of reclaimed land extending into the East China Sea. To put things into perspective, on a daily basis the landfill swallows up the equivalent of 114 A40D articulated haulers fully loaded with trash. Since its inception, Laogang landfill has absorbed an estimated 27 million tonnes of waste.

Having picked up the soil, the A40D returns to the active area to dump its load which is then spread over →



Volvo A40D articulated hauler covers garbage with soil

Photographs by Daniele Mattioli



Laogang operations manager Sun Yan Feng

the older layer and covered with soil and geo-membranes – impermeable membranes used to contain the waste and its leachates. The flow of traffic is impressive – every 30 seconds, a bright yellow, container-sized truck arrives fully loaded and an empty one leaves.

“There are about 100 of those, each making five trips a day,” says Sun, explaining that the trucks are loaded with solid waste at a nearby docking and sorting station, delivered by a flotilla of barges which collect it from downtown Shanghai.

MULTITASKING

“We have four Volvo haulers and they are useful because they suit our terrible road conditions,” says Sun, describing how the haulers are used to move the leachate – about four or five loads a day – and sometimes the waste itself, if necessary.

The key driver in the choice of equipment is high reliability, explains Sun. “Apart from the need for regular maintenance, the A40D has a very low failure rate, so we can use it continuously.”

He goes on to shed light on the financial side of the project. “Yearly, we can earn the equivalent of \$32.2 million

from what is a relatively low-margin enterprise,” he says, adding that the company made a \$4.8 million profit last year. The biggest cost, by far, is treating the chemical compounds in the leachate.

But there is more to running a modern landfill than simply digging a hole and filling it with rubbish. Leachate pools collect the sludge that percolates through the mound of waste – this has to be treated before it can reach and contaminate the ground-water system.

The landfill operators also collect gas from the decomposing waste which is burnt to generate power. While this process does not achieve huge financial gains, it reduces the potent greenhouse gases being released into the atmosphere. The operation also earns carbon credits, which can be traded on the international markets. The power generation

is carried out by a subsidiary, because this line of business requires a joint venture with the controlling stake owned by a Chinese party.

WASTE NOT...

Back in the city, while separate bins for recyclables are widespread, government waste services do not have the

THERE IS MORE TO RUNNING A MODERN LANDFILL THAN SIMPLY DIGGING A HOLE



Four Volvo A40D articulated haulers are used on site

resources to run a recycling system, which means everything ends up in the unsorted municipal solid-waste pile.

“The recycling job is done well only in the little bin,” says Sun, referring to public recycling bins and the informal army of migrant workers in cities across China who hand-pick whatever they can sell to scrap traders. The

scrap business is thriving, offering those with no other source of income a strong incentive to collect paper, glass, wood, metal and other materials and sell them on. Although it is not formally documented, this system proves efficient and is thought to be helping recycle up to 38% of municipal solid waste produced in China every year.

The Volvo haulers were imported by Veolia at the beginning of the venture, says Volvo CE’s Kino Zhao, key account and industrial sales manager for China. “But our local dealer, Shanghai Fullback Full Construction Equipment, is responsible for the service and parts,” he says.

The Laogang landfill is a powerful reminder of China’s economic growth and its unavoidable consequences. As millions of people in China have been lifted out of poverty over the last three decades, the production of municipal waste has soared, requiring updated

waste management techniques and tools to manage it.

“In this decade, we have filled 27 million tonnes of waste,” says Sun. “As our equipment reaches the end of its product lifespan, we are planning to purchase more Volvo machines to satisfy our growing capacity.”

China, says Sun, is moving towards incinerators, as landfills are not very popular with the public. However, although incinerators smell less, especially in summer, they do emit more harmful chemicals into the atmosphere and cost – per tonne of disposed waste – almost three times as much. The difference in costs, he explains, is due to the unsorted nature of the municipal waste, which requires more energy to burn efficiently. “We get anywhere between \$10 and \$13 per tonne from the government, but incinerators cost

the government closer to \$32 per tonne.”

It is a complex business, agrees Sun, taking a moment to peer into the distance at the past decade in the form of a 27-million-tonne hill, while pondering on his part in building a cleaner future for China: “It’s my way of contributing to the well-being of society.” ☞

Visit the *Spirit* website or download the *Spirit* app to watch a video



Photographs by Erik Luntang



Family firm Sylvestre-Beton recently ordered eight new wheel loaders

SIMPLY THE BEST

The synergy between this Volvo CE customer and his local dealer is key to their combined success

by Catherine Wells

As dynamite charges are detonated on the edge of a limestone cliff, a muffled boom echoes round the Chaux de la Tour quarry in the Luberon area of south-east France. When the clouds of white dust clear to reveal the newly blasted rock face, it is the cue for a convoy of vehicles to drive down the winding road to the quarry bed.

Leading the procession is a Volvo L180H wheel loader, the operator wearing dark glasses to protect against the dazzling Provençal sun bouncing off the limestone walls.

The quarry is owned by the Belgian industrial group Lhoist, but operated by Sylvestre-Beton, a local company with its origins dating back to 1895. Rudy Sylvestre, 37, runs the family firm – he is the fifth generation to take up the reins. And since the company operates eight quarries in the south of France it is an important customer for both Volvo CE and Volvo Trucks.

Sylvestre recently ordered more than 25 FH500 Volvo trucks as well as 11 Volvo machines – two EC360CNL and one EC460CL tracked excavators and eight new wheel loaders, models L30G, L120H, L150H and L180H.

HARD BARGAIN

Although Rudy Sylvestre and local Volvo CE dealer Olivier Marziano have known each other for nearly 15 years, that did not make the deal any easier. They laugh together about the hard bargain driven by Sylvestre.

“We might be smiling today, but it was really hard,” Marziano remembers. “It’s not easy negotiating with Rudy Sylvestre. It lasted a month and a half – coming here every two days – giving demonstrations and trials and with very aggressive competitors.” And then he looks over his shoulder →



Olivier Marziano, commercial director of Payant PACA



Rudy Sylvestre's company operates eight quarries in the South of France



FRANCE

at one of the Volvo machines in the quarry. "But it was worth it – the result is there."

So what clinched the deal for Sylvestre? "The human relations, the quality of the service and the resale price make them the best machines on the market," he says simply.

Up to 400,000 tonnes of limestone are extracted on this site annually which puts a lot of pressure on machines and, as they are replaced every five years, the resale value is important.

Marziano is a regular visitor, pointing out: "You have to become a bit of a specialist in your customer's business."

He watches as a Volvo excavator scoops up the newly blasted limestone and empties it into a truck to be transported to the crushing machine in a neighboring quarry. The limestone will probably be used in road drainage or reduced to fine calcium carbonate powder for use in pharmaceuticals or toothpaste.

PLANNING AHEAD

Based in Aix-en-Provence, Olivier Marziano is commercial director of Payant PACA (Provence-Alpes-Côte d'Azur), one of the largest Volvo CE dealers in France.

The success with the Sylvestre deal is an indication of the energy Marziano has put into building up the Volvo CE market in the region. And, of course, it has been a tough time to do that with the construction business slowing dramatically in France.

Rudy Sylvestre felt the crisis along with everyone else, being forced to sell off part of his cement business. But he says he used the time to prepare for the inevitable upturn.

"It is at your lowest point when you put everything into question, for example, changing equipment. We have invested a lot this year and last year to get more efficient equipment which will save us money on maintenance and fuel costs."

And now he says he is feeling much more positive. Looking around at the Luberon mountains, he points out some of the famous villages perched on the hillsides, said to be the most beautiful in France, such as Gordes and Lacoste.

"You can't find a better place to live," he says. And as for future business plans, he hints at a new project coming up. "We will be buying more machines," he pauses, and then adds with a smile: "I think they'll be Volvo." ☞

Visit the Spirit website or download the Spirit app to see a video from the quarry

The machines are replaced every five years

LEADING ROLE

Collaboration is the key to success on climate action,
says Volvo CE President Martin Weissburg

by Patricia Kelly

Recognized as a pioneer in sustainable production, Volvo CE continues to lead the way on climate action within the construction industry. But continued collaboration between industry, academics, government agencies and non-governmental organizations is vital if the industry is to move towards a more sustainable future, says Volvo CE President Martin Weissburg. No one sector can achieve climate action goals alone.

Having recently hosted the first summit of the Construction Climate Challenge (CCC), an initiative launched by Volvo CE in 2014 to support climate protection and energy efficiency throughout the construction sector, Weissburg says summit participants emphasized that environmental damage is worse than was previously feared.

"There were some very sobering reports about the state of the environment," he says. "Each of us must do our bit to drive towards a solution. Each part of the collaborative effort – including industry and manufacturers – has to increase the speed of their activities, increase the investment, increase the focus, to really be part of this large collaborative group to bring about change." The answer, says Weissburg, is "a coming together of all sectors, not just industry". Collaboration exists, he acknowledges, but more is required.

According to Weissburg, success also requires common terminology and units of measurement to measure the impact of climate change as well as potential improvements to the environment.

GOOD BUSINESS

"Embracing the need to protect the environment and reduce CO₂ emissions is not always a good business proposition for everyone," Weissburg concedes. "For Volvo, one of our core values is environmental care so we wake up each morning thinking about this and about how this is good business for us."


Resistance to change and reluctance to act demonstrates the importance of establishing policy and laws, says Weissburg, citing engine emission standards as an example.

"Standards have been changing over time and continue to change. All industry is required to participate – it then becomes a level playing field and we must all play by those same rules. That then drives innovation, investment and changes in technology. When policy and industry come together this is good for society and has a very positive impact on the environment."

ACTION NOT WORDS

Volvo CE remains a pioneering company, he continues. "We lead with our actions and we lead with our investments. We spend a lot of our advance engineering and R&D monies to make sure we have the latest technology to reduce emissions." In addition, says Weissburg, the company invests continually in operator training and work-site efficiency to reduce idle time and fuel burn, offering training and services so that equipment can be used in an efficient way. With its articulated hauler factory at Braås in southern Sweden, the company can also boast the first manufacturing facility in the industry to become 100% carbon neutral. "That takes a real commitment from any company," comments Weissburg.

He adds, however, that the overriding challenge to tackling climate change – although not an obstacle – is that there can be no single leader.

"We hosted and sponsored the CCC summit to bring the people together to create a forum to raise awareness," he says. "It doesn't matter who takes the lead, as long as the lead is taken. But it can't be one party alone. We all have to do this together to drive success." 

Visit the *Spirit* website or download the *Spirit* app to see the video interview

**IT DOESN'T MATTER
WHO TAKES THE
LEAD, AS LONG AS
THE LEAD IS TAKEN**



Photograph by Sander de Wilde

BREAKING NEW GROUND

Brazil's Fagundes mining corporation recently became the world's leading purchaser of the Volvo 70-tonne excavator

by Sam Cowie

Photographs by Lianne Milton

Reliability, productivity and value for money are the main reasons why Fernando Fagundes, commercial director of Brazil's Fagundes mining corporation, says he chooses Volvo Construction Equipment.

At Butiá farm, a Fagundes property in the southern Brazilian state of Rio Grande do Sul, near the border with Argentina and Uruguay, Fagundes explains why the Volvo EC700 excavator is the company's preferred choice.

"It's simple – if I wasn't getting the return I needed, I would choose a different machine," he admits.

One of Brazil's leading mining contractors, the company has bought more than 60 Volvo EC700 excavators since 2008.

CORE VALUES

With a keen eye for sustainability, the firm recently celebrated 30 years in business. Founded in 1985 by José

and Nelsi Fagundes, and run by brothers Fernando, Silvio and Diogo, it upholds the family's core values of respect and determination, while maintaining a commitment to sound environmental practices, such as regenerating former mining sites as well as those currently in operation.

Fagundes began using the EC700 excavator in 2008, having been a Volvo client for about five years – today, the firm counts the 70-tonne excavator as the most reliable machine in its unit.

Fernando Fagundes says that while there are cheaper machines on the market, the EC700's high productivity rate provides an excellent cost-to-results ratio. He explains that in the long run it is a lot more expensive to buy machines that are cheaper, but that end up not producing enough.

"Price is important, but it's not the be-all and end-all," he says. "The purchase price is only one aspect; you have to consider the second aspect – productivity."

A prosperous state, Rio Grande do Sul is Brazil's largest

producer of coal and the fourth highest contributor to the national GDP. Larger in area than the United Kingdom, the state is home to just 11 million citizens, nicknamed 'gauchos', who share a rich ancestry from Spain, Portugal, Italy, Eastern Europe and Africa.

When it was first founded, Fagundes focussed on industrial earth moving and effluent processing before moving into mining. The firm won its first local mining contract in 1995, and by 2001 had secured its first contract outside its home state, in Minas Gerais.

Today, Fagundes is one of the best-known mining contractors in Brazil, currently working in seven of Brazil's 27 states, in basalt, limestone, phosphate, iron, gold, niobium and vanadium mining and satisfying the thirst for coal – a major source of electricity generation in the country – in the state of Rio Grande do Sul.

Fagundes also provides services to a local treatment facility handling 60% of the garbage in Rio Grande do Sul state,

from which it extracts methane gas. The gas is processed in the nearby city of Minas do Leão before being piped underground to a thermal power plant, which generates power for up to 80,000 people.

FIT FOR PURPOSE

Dressed in safety gear, overlooking the coal quarry site where four Volvo EC700s are hard at work, Fernando Fagundes points to Silvio, saying: "He isn't a director because he's family – he has this job in the company because he gets the job done."

The Fagundes business also has separate, independent arms working within livestock farming, agriculture, construction, crushing and transport.

According to Fernando, what distinguishes Fagundes from other extraction companies is a commitment to sustainable business practices in a region which, because of its abundance →



Brothers Silvio (left) and Fernando Fagundes at Butiá farm

MINING AND LOOKING AFTER THE ENVIRONMENT ARE NOT MUTUALLY EXCLUSIVE



The lake at Butiá farm

of coal, has witnessed much environmental degradation. Seeing such widespread deterioration in the past is what spurred Fagundes to engage in environmentally sound practices, restoring mined lands to their original state by replacing dug earth and treating the soil. “We know that any mineral, when exploited badly, can destroy and pollute,” says Fernando Fagundes. “So it’s a satisfying feeling to recuperate the land we have worked on.”

GROWING GREENER

Such commitment to sustainable practices is demonstrated by the 2,000+ hectare Butiá farm, 85km from the state capital Porto Alegre, itself a former mining site. For ten years until 2009, Butiá farm was a coal-mining operation, but

today it has become a bastion of sustainable business, raising prize livestock. Strolling around the grounds of the farm with Fernando Fagundes, it is quite hard to believe that six years ago the area was an active mining operation. Now the grass is green, fresh and healthy and the land has been replanted with trees. Situated in the biggest coal-producing region of Brazil, the farm’s pièce de résistance – a lake by the entrance of what was the main quarry – truly demonstrates the plausibility of extraction industries working with sustainability. Today, the water supports river prawns which thrive in the lake. “We like to show through our work that mining and looking after the environment are not mutually exclusive. The two can work perfectly together,” Fernando Fagundes concludes. 🌱

WELCOME TO THE CONSTRUCTION INDUSTRY CLIMATE INITIATIVE



The Construction Climate Challenge is part of Volvo CE's commitment to WWF's Climate Savers Program.



The Construction Climate Challenge is hosted by Volvo CE to promote environmental awareness in the construction industry. We aim to create a dialogue between industry representatives, academics and politicians, as well as providing funding for new research and sharing existing knowledge and resources to help the industry make a difference for generations to come.

Volvo CE has long been committed to reducing harmful emissions from its products and facilities. But climate change is too big of an issue to be dealt with through the resources of one company alone. As acknowledged in 1972 by former Volvo Group President and CEO Pehr G. Gyllenhammar: “We are part of the problem – but we are also part of the solution.”

Read more about the Construction Climate Challenge here: [constructionclimatechallenge.com](https://www.constructionclimatechallenge.com)





Carl Gindahl, Volvo CE customer center, exhibitions and events director at Eskilstuna

Photographs by Gustav Mårtensson

NONE FOR THE ROAD

The safety of people, machines and the environment they operate in is at the heart of Volvo CE activities



Heiko Obst of Georg Grube GmbH



Hauke Schlichtmann of CSK Schlichtmann

Safety rules that should never be broken when operating construction equipment include wearing a seat belt, driving carefully, paying attention to surroundings and – importantly – driving sober.

To reinforce its dedication to safe machine operation Volvo CE has introduced a breathalyzer test at its customer center in Eskilstuna, Sweden, for all visitors hoping to test drive equipment. Initial concern that visitors might view the move as unnecessary or overbearing proved unfounded, with a positive reaction and no fall in the number of people wanting to operate the machines. Now the safety measure is set to become standard practice at Volvo CE customer centers across the world.

More than 25,000 people visit the Eskilstuna center every year and approximately half of them choose to operate the wide range of Volvo equipment available in the test yard. The breathalyzer initiative ensures all visitors understand the importance of handling the machines safely, as well as guaranteeing that they are in the best shape to operate the often big, heavy and fast-moving equipment.

ENJOYMENT

“We want everyone who comes to the customer center to enjoy themselves,” says customer center, exhibition and events director Carl Gindahl. “But we also have an obligation to make sure everyone who visits us remains safe. As it is, we have operators with differing levels of skill and experience, and that is challenging in itself, so needing them to be sober is a basic requirement. Thankfully, we have never had an alcohol-related incident – or accident of any kind, in fact – but only preventive measures will ensure it stays that way.”

No one knows what effect just a single alcoholic drink will have on any individual. It depends on a variety of factors including age, sex, weight, whether they have eaten beforehand, how tired they are – even their general mood. Legal limits differ from country to country and in some countries there is zero tolerance. The penalties also vary – a possible six-month jail sentence in the UK and Ireland, and from one day to three years in Luxembourg. A drunk-driving conviction in France could bring between two months and two years behind bars and up to three years in Finland.

“We’re not trying to make criminals out of our visitors – it’s just about safety, nothing more,” says Gindahl. “And our guests respect that and aren’t offended when asked to take the test. I’ve not had a single negative comment about it – nor has anyone refused to take a test. To be professional, we decided that we had to have a fixed limit, so we are using the same equipment used by the Swedish police and the same safe road driving limit operating under Swedish law – 20mg of alcohol per 100ml of blood. Which, incidentally, is one of the lowest in the world. The process is automatic – just blow into one of the disposable plastic tubes and the breathalyzer does the rest.”

The initiative is “a sensible precaution”, according to Hauke Schlichtmann, head of earthworks and landscaping at specialists CSK Schlichtmann of Balje, Germany, and makes “perfect sense”, according to Heiko Obst, a technical manager with civil engineering company Georg Grube GmbH, based in Bremerhaven, Germany.

“We have many of our own machines and trucks, so we understand the responsibilities involved,” commented Obst during a recent visit to the customer center. “Breathalyzing people who want to test machines is just fine by us.”

HISTORY

The company’s concern about alcohol consumption and the operation of machinery goes back to the mid-19th century in Eskilstuna where Johan Theofron Munkell, the son of a clergyman, founded in 1832 what has become Volvo Construction Equipment. In 1854, he started a brewery next to the workshop in an attempt to promote temperance among his employees – in those days, beer was seen as a weaker and more acceptable alternative to the spirits that were habitually drunk.

In several countries, current legislation gives drink-driving offenders the opportunity, at the discretion of a judge, to take part in an ‘alcolock’ rehabilitation program. This is an ignition lock that prevents someone who has consumed alcohol from even starting their vehicle. The driver blows into an on-board breathalyzer before activating the ignition.

The device can be set at different levels and the vehicle will not start if the driver is over the limit. The program has been used in rehabilitation programs for repeat offenders in the US, Canada, Australia, Sweden and Belgium, where research shows they are more effective in preventing recidivism than license withdrawal or fines.

Finland, France and Spain have mandatory alcolocks on school buses. They are also used in government and company cars in Sweden, and more than one in four heavy trucks sold by Volvo in Sweden is now factory-fitted with an alcolock. Volvo was the first to offer the device as an option on new cars – there have been calls in the Swedish parliament for them to become mandatory – and installation can reduce insurance premiums.

RULES

The breathalyzer comes as no surprise to visitors at the Volvo CE customer center. “On the evening they arrive we welcome all our guests and explain that if they want to use the machines the following morning then they will have to be breathalyzed,” says Gindahl.

“We have mandatory rules when it comes to testing the machines – among them, you have to be at least 18 years old and you have to be sober. We sometimes bend the rules for technical apprentices younger than 18 – but we never make exceptions on being sober.”

**WE HAVE AN
OBLIGATION TO MAKE
SURE EVERYONE
REMAINS SAFE**

FLEXIBLE FINANCING

The involvement of Volvo Financial Services and its deep understanding of Volvo customers and their industries can help support sometimes difficult purchasing decisions

by Cathy Smith

There is no doubt in Scott Rafkin's mind that the availability of in-house Volvo financing can be a deal-maker when it comes to selling construction equipment.

Rafkin, who has been global president of Volvo Financial Services (VFS) since July 2014, says most customers need some sort of loan or lease and cannot afford to simply lay out cash.

"VFS provides customer financing in 43 countries around the world where approximately 90% of Volvo Group sales are transacted," he says. "We want to become a primary reason that a customer is able to purchase a Volvo product."

SPEEDY EXPERTISE

Rafkin acknowledges that as a captive company and a premium financial service provider, VFS cannot compete with the interest rates offered by many independent banks or finance companies. But, he says, customers have other priorities.

"Our value proposition and competitive advantage is speed, expertise, and knowledge of both our customer's business and the product we are financing.

"We don't just go to customers and say 'Here are our financial terms, take it or leave it'. We take the time to understand their needs and to structure solutions."

Fourteen hundred people work for VFS worldwide and Rafkin says his team really understands that the financial services they provide are shaping the future.

"Our work impacts society and people's lives," he says. "We help companies big and small, and through a deep understanding of a customer's business model – right down to details such as when and how equipment is used – VFS tailors a financial product that can support companies through the seasonal peaks of their business cycle."

Rafkin cites the United States as a good example of a market that went through a steep downturn through the economic crisis but where VFS was able to work with customers and dealers through that period to ensure the sustainability of their businesses.

"We were there in the difficult times as well as the good times and, as a result of that, our customers and dealers have

a strong sense of loyalty to VFS and the Volvo Group."

Rafkin is keen to dispel the idea that VFS, founded in 2001, is purely a financing operation. He says it is not all about making money, although the captive company does, of course, have to meet profitability targets set by the Volvo board.


RISK MANAGEMENT

"We need to make money as a business area for the Volvo Group but our main objective is to support sales. That is our reason for being but does not mean that we take unreasonable risks or price our products inappropriately. When we do this effectively, I expect VFS to have a strong number one market share in every market where we operate."

Rafkin admits that heading up a part of the Volvo Group which represents more than a third of the Volvo Group's balance sheet is a big responsibility.

Headquartered in the US city of Greensboro, North Carolina, VFS has a portfolio of customer and dealer accounts worth about US\$18 billion, around a third of which is in construction equipment. That portfolio ranges from an operator buying one single machine to a large fleet customer running hundreds of machines in multiple industries.

The aim of VFS is to integrate the financial package through Volvo Group dealers at the point of sale, so that the overall purchase is as straightforward for customers as possible. For Rafkin it is about more than just earning the first sale. He says VFS is interested in the "total life cycle" of customers and machines and that the company's relationship with customers during the entire period of a lease or loan is an opportunity to drive loyalty to the Volvo brand in the future.

"Our customers tell us that a positive experience with VFS can be a significant influence on whether or not they buy a Volvo product in the future." And, he adds with a smile: "Hopefully then they will also finance the product with Volvo Financial Services." 

VFS PROVIDES CUSTOMER FINANCING IN 43 COUNTRIES AROUND THE WORLD

Visit the *Spirit* website or download the *Spirit* app to see the video interview

COMING UP WITH THE GOODS

Volvo CE customers on three continents attest to the value of dealing with Volvo Financial Services

Kelston Sparkes Group (KSG) Ltd, based just outside Bristol in south-west England, has 180 employees, owns 200 construction equipment machines and specializes in major civil engineering projects such as earthworks and quarrying, *writes Tony Lawrence in the UK.*

“Ours is a huge industry, involving huge projects, huge capital outlays and huge machines,” says company director Rob Stark. “But in terms of people, it’s very small. That’s why relationships built on trust and confidentiality are so important.”

Around eight years ago, the company embarked on a new relationship, linking up with Volvo Financial Services (VFS). The two remain in tandem today.

UNDERSTANDING

“When the credit crunch hit, we needed to diversify and extend our credit facilities to help us keep updating our machinery,” Stark explains. “That is where VFS came in. “They knew the industry was facing difficult times; they were competitive in terms of rates and it was bound to be an advantage that, unlike most commercial banks, they understood our business – we are machinery people and they understand the machines. They knew a lot about us, and about how much care we take in maintaining our fleet. That is all a big plus.”

Equally important is his eight-year rapport with David Busuttill-Thomas, VFS sales manager for the UK and Ireland. “That was a problem with the finance sector – people come and go, it can be transitional.”

“I work very closely with Rob,” agrees Busuttill-Thomas. “We have an understanding and we work together to put each finance deal together. It’s an ongoing process. VFS

does not go away. We stay in touch and there is a lot of behind-the-scenes work.

“When KSG are looking to acquire a machine, I want VFS to be there, when the decision is being made and adding value at the point of sale. We want to provide options, and to be part of the offering rather than just a back-up service. We also want to make quick decisions – speed of execution is crucial for our customers.”

Having a one-stop, in-house finance division, adds Volvo CE business manager Gavin Clark, is invaluable: “It’s all about being able to cover all the bases. If the customer is happy, we are happy.”

In the early 1970s, KSG bought one of the first Volvo articulated haulers to reach the UK – it was recently refurbished, marking 25 years of partnership with Volvo CE, and presented to former company head Kelston Sparkes.

Around 65% of the KSG fleet today is Volvo.

“We have had thousands of Volvos since we started,” says Stark. “VFS is now part of the relationship. How long will we stay with them? For as long as they keep coming up with the goods – and they have so far.”

VFS GIVES US A COMPETITIVE EDGE

IMPRESSIVE TEAMWORK

As it expands its quarry operations, Malaysia-based Spring Energy called on VFS to help it buy 10 Volvo A40F articulated haulers earlier this year, *writes Justin Harper in Singapore.*

Spring Energy has recently taken on a number of large-scale projects in Malaysia and wanted to beef up its fleet of equipment and vehicles. Along with the haulers, the quarry specialist has also purchased 10 excavators this year, taking its total fleet of Volvo machines to more than 60. And in



Kelston Sparkes Group Ltd directors Alan Sparkes (left) and Robert Stark

June, it also took delivery of two new Volvo wheel loaders.

These purchases represent a major capital investment for Spring Energy but allow it to take on larger-scale quarry, mining and civil engineering contracts. The company has a strong affinity with the A40F, and the 10 new machines complement the 12 it bought between 2012 and 2013.

Yap Ho Huat, executive director of Spring Energy, says: “We have worked with Volvo for a number of years and have always been impressed by the Volvo team as they understand the products and our needs.”

As the Kuala Lumpur-based business expands, the management wants to concentrate on growing its operations rather than getting bogged down in paperwork and form-filling. “We do have financing with local banks but I really like the VFS set-up as they are efficient, giving us lots of support and coming up with terms that suit our needs,” adds Yap. Being able to deliver financing solutions quickly, whether in the form of loans or leasing, is critical to any business, particularly those undergoing rapid expansion.

BUILDING BOOM

While projects are booming for Spring Energy in Malaysia, it is keen to expand internationally within Asia, a region that is undergoing massive transformation and huge wealth creation. Brandon Ross, business director for Volvo CE in Malaysia, says: “Malaysia is an exciting place to be based, in the heart of Asia where some huge construction projects are taking place through urbanization and expanding and improving infrastructure.”

He adds that about 30% of sales in Malaysia are made using VFS. “The ability to discuss short-, medium- and long-term sales opportunities with VFS gives us a competitive edge, especially in relation to the pre-approval of finance.”

Another plus point, according to Ross, is the streamlining of periodic payments, which means the equipment financing component and maintenance service costs can be combined in one monthly bill, reducing paperwork even further.

BACK FROM THE BRINK

Proof that many companies are storming back from the global financial crisis of 2007-08 lies just off the Florida Gulf Coast, *writes Julian Gonzalez in the United States.*

RIPA & Associates, a civil contracting company in the Tampa, Florida area, did what many companies were forced to do during those tough times – trim their workforce. Thankfully, shrewd business decisions quickly had RIPA back on its feet as the company grew from 175 employees to more than 500 by June 2015. In the meantime, VFS has been more than happy to play a part in that growth.

“They were the best option when we were buying Volvo equipment. VFS offers extremely competitive rates and terms. They were really a great option for us in terms of a financial standpoint,” says Chris Laface, president of RIPA.

Through the good times and the bad, VFS is there for companies such as RIPA. As a captive finance company, VFS can transform its lease terms to keep RIPA following a smooth, upward trend on its balance sheet.

“Typically, what we find when dealing with any of the major brands on heavy equipment, the financing arm associated with Volvo CE – VFS – is generally the most competitive when it comes to financing it,” explains Laface. “They know their equipment well and offer very strong terms.”

REWARDS

Founded in 1998, the company prides itself on the core fundamental values of strength, reliability and trust. With annual revenue constantly surpassing US\$100 million, it is easy to see why RIPA would tie those values to VFS, which excels in helping clients in any way possible, especially when times get tough.

“Banks are in and out of the market, whereas as a captive, this is all we do. We can’t change our mindset and decide we want to do loans on medical equipment instead – this is our livelihood, this is all we do,” explains VFS district financial manager Lori Waldrop. “Back in 2008, when the economy took the big turn, we were willing to make modifications for customers who got into trouble, extend their terms, give them dispensations, do whatever it took to keep them in the equipment. The banks, meanwhile, were saying that once a customer’s line came up for renewal, they were calling the note and giving them 45 days to pay it off.”

With the financial crisis now in the rear-view mirror, RIPA continues to surge forward while reaping the rewards of having VFS at its side.

“They’ve been great to work with and our relationship is strengthening as we acquire more equipment with their help,” says Laface. “They do a nice job and treat us well.”

FIRST LINE OF DEFENSE

With major flooding predicted in the next 25 years, the Dutch rely on sturdy defenses against rising sea and river levels →

by Nigel Griffiths





From left: Nanco Klein, Ger Kleine, Richard Moens

powerful River Rhine. The 'Room for the River' project is an integrated spatial plan launched in 2006 for flood protection and environmental management. It involves building or modifying dykes, deepening flood channels and creating flood plains to serve as a flood bypass.

Along a stretch of the River IJssel between Cortenoever and Voorsterklei, a major bend in the river already features a flood plain, ancient dyke and historic farms. The river is narrow and has strong currents, fed by the surging power of the Rhine. With rising sea levels, major flooding is predicted within the next 25 years, with the impact on the surrounding areas expected to be devastating. The last major flooding in the area was in 1990 and the authorities know what to expect.

For this area, de Vries & van de Wiel plans to give the river more room to try to avoid catastrophe. The project, which runs until March 2016, entails building a new dyke 1km further away from the river. The existing structure will be lowered to become a primary barrier during normal conditions. The river is being widened and dredged to lower the water level by 30cm, creating additional space within the flood plain to cope with flood water.

TOTAL CONTROL

The contract with de Vries & van de Wiel gives the company complete responsibility for design and construction of water defenses as well as total environmental management of the area and relations with local populations.

"At de Vries & van de Wiel we needed equipment which could work on different types of projects ranging from dyke building to dredging from pontoons," explains technical superintendent Nanco Klein. "We need the machines to operate for 2,200 hours a year to be economical. This means they must be able to carry out a variety of tasks on both land and water."

The challenge for Kuiken was to find the optimum mix of features that would permit de Vries & van de Wiel to operate cost-effectively in its different working environments," explains Ger Kleine, business line manager at Kuiken.

PRECISION

The customized Volvo machines provide the extra reach needed for both building the dykes and dredging, two completely different applications that involved special modifications by Volvo CE to extend the machine booms and arms. Each excavator boom can be extended from 6.45m to 8m, while the arm was extended from 3.20m to 4.70m. To compensate for the extended boom and arm is a cleverly designed additional 2,300kg counterweight.

One EC380EL has a hydraulic cab riser, which can elevate through 1,700mm for better visibility when maneuvering over angular dykes. Dredging requires a high level of precision and sensors fitted around the machine give the operator a 3D view of digging or dredging on the cab's computer screen.

Other customized features include pressure alert sensors, pressure filters, quick-coupler hydraulic connectors, an →

Over the centuries, the Dutch have become the world's leading experts at reclaiming land from the sea, building flood barriers known as dykes to prevent flooding and using windmills for drainage. But their elaborate flood defenses are once again under threat as climate change causes sea levels to rise. The authorities are taking early action, and customized Volvo excavators have been deployed to help strengthen the country's flood protection.

With so much of its territory reclaimed from the sea, flood control has always been an important issue in the Netherlands. Today, some two-thirds of the country is vulnerable to flooding, the consequences of which could be devastating in such a densely populated region.

A complicated system of drainage ditches, canals and pumping stations (historically windmills) keep the low-lying parts dry for habitation and agriculture. But it is no longer enough and, believing it is just a matter of time before disaster strikes, the authorities are busy strengthening their flood defenses.

Specialist environmental and dredging engineers de Vries & van de Wiel, a subsidiary of the DEME group which has been engaged in dredging and land reclamation in the Benelux since the middle of the 19th century, have designed a flood protection project for one of the main danger points. Their contract involves complete responsibility for design and construction of water defenses as well as total environmental management of the area and relations with local populations.

Working with six Volvo excavators – two EC380EL, two EC250CL models and two EC220DL machines – the machines have been specially customized for de Vries & van de Wiel by Volvo distributor, Kuiken NV.

FLOOD PLAN

Of immediate concern to the Dutch authorities are the rivers – the IJssel, Meuse and Waal are all offshoots of the



One of six Volvo excavators used on the project



The machines are painted in the green livery of de Vries & van de Wiel

18-tonne load hook, and customization for underwater operation. The excavators have wide 900mm track shoes for better support in the soft Dutch clay.

One of the more unusual customizations requested by de Vries & van de Wiel was to replace the Volvo yellow with the company's green livery. The booms are painted grey for practicality, explains project manager Richard Moens, as it avoids reflections that could impede the operator's work.

GOOD INVESTMENT

When selecting equipment, de Vries & van de Wiel thinks long term, Klein explains. "High standards on emissions compliance are being specified by the government and we expect these to rise further," he says. "We are investing with a minimum five-year perspective, and we want to ensure we are at the highest level for performance and emissions compliance.

"When selecting a machine, our calculations are based on the cost of ownership over a five-year period. Indeed, fuel costs over five years are three times the investment in the machine, and service and back-up are also important," Klein adds. "At the end of the day, we have excellent excavator platforms for multiple uses with powerful

engines and low fuel consumption."

Another important factor in winning the de Vries & van de Wiel order was Kuiken's support capability. The company has service vehicles across the country and can even deliver parts overnight. Kuiken's Kleine explains that de Vries & van de Wiel has no in-house maintenance facility. "They have one planner for the Volvo fleet who can monitor the CareTrack telematics system," he says.

"This gives them a good insight into operating efficiency, plus facts and figures on the cost of the work in progress."

As work advances, farms have been relocated beyond the new dyke although agricultural activities will continue. Dyke modifications are carried out with respect for the natural environment, and plant species and birdlife are being maintained. Working closely with local residents, de Vries & van de Wiel is also helping find solutions for homes and businesses affected by the project.

As a finishing touch, a cycle path is being built along the top of the dyke to provide recreational opportunities, while the reinforced Cortenoever flood plains will help give residents both peace of mind and protection from the elements. ☐

Visit the *Spirit* website or download the *Spirit* app to see aerial video of the project

OILING THE WHEELS OF SUCCESS

Lubricants represent a key component for Volvo CE customers →

by Tony Lawrence



Photographs by Gustav Mårtensson



Dr Donald McCarthy, lubricants specialist (left) with Dr Anders Pettersson, global lubricants co-ordinator

Everyone knows that some components are essential to a machine's success. For instance, an articulated hauler would not work well without gears, an excavator without bearings or hydraulic valves could not do much excavating, and wheel loaders without wheels would be non-starters.

But some elements tend to get overlooked or taken for granted. Take oil, for example. Imagine trying to operate construction equipment without the help of engine, hydraulic, transmission, axle and wet-brake lubricants, coolants or grease.

Anyone who thinks oils and lubricants are simply oils and lubricants – all the same and simply drilled out of the ground and pumped straight into a bottle – should spend some time with Dr Anders Pettersson and Dr Donald McCarthy at Volvo Construction Equipment's Technical Center at Eskilstuna in Sweden.

VITAL PARTS

Although the pair could happily talk for hours about hydrocarbons, polyalphaolefins and kinematic viscosity, they get straight to the point that really matters to customers.

"Before, people built a machine and then looked around for some oil to go in it. Today, we see oil as a component – and a vital one," says McCarthy. "We consider oil from the very start.

"Lubricants play a huge role in maximizing machine performance and uptime while minimizing maintenance and cutting the total cost of ownership. The best lubricants are engineered to make a machine more responsive and quicker, enabling it to do more while using less fuel. In certain applications and under certain conditions, we have seen new oils raise performance by as much as 10-15%. Not many people know that."

The Technical Center, Volvo CE's largest R&D site, houses around 800 staff carrying out a wide range of cutting-edge research and testing while working on new advanced technology and engineering projects.

"There are five of us working full time on lubricants," says global lubricants co-ordinator Pettersson. "As well as the laboratory, we have testing cells and machines here. We keep an eye on all forms of data coming in from the field and monitor the performance of a large number of machines all around the world. We also work closely with our partners, as well as with other parts of the Volvo Group."

'SALAD DRESSING'

Volvo CE's own-brand oils and lubricants, Pettersson explains, "are unique and specific to us – they are tailor-made". They are researched and designed in tandem with

oil companies, additive firms and universities. Volvo is heavily involved in setting original specifications, developing formulations and then carrying out verification tests.

"It's like creating a salad dressing," he says. "You start with a base oil – it can be slightly different, whether extra virgin olive oil, rapeseed or whatever – and then you add the spices, depending on whether you want a Caesar salad dressing or a vinaigrette. The additives are only a small percentage of the mix but make a huge difference to its properties."

Some Volvo lubricants are designed for the most extreme conditions: -40°C in Siberia, or +40°C in desert regions. But the trick is also to produce standard oils which can perform optimally and for long periods in an ever-wider range of environments and temperatures.

"Think of oil as whisking cream," says lubricants specialist McCarthy. "Poor-quality oils thicken quickly; good oils don't, so they function well for longer, protecting machine parts and maximizing fuel efficiency."

BETTER UPTIME

"This also means you don't have to drain the oil from a machine as often," he explains. "Extending these drain intervals is crucial to improving uptime and makes a massive difference, to large fleet owners in particular."

NEW OILS RAISE PERFORMANCE BY AS MUCH AS 10-15%

And while the focus is on new developments, McCarthy adds, the Technology Center team is also committed to improving existing oils and lubricants. "Not everyone has access to top-level products but it's important that owners in more remote areas can also get lubricants which are Volvo-approved, tested and functioning at their best."

Pettersson, a 40-year-old Swede, and McCarthy, a 42-year-old Scot, are mechanical engineers by training; they both have an extensive knowledge of chemistry. They met in 2002 while studying at Luleå University of Technology in northern Sweden.

They say they are different characters but clearly enjoy working and socialising together. They also share a passion for making a difference.

"It can be frustrating that people don't know what we can do to help them but we see that as a challenge," says McCarthy. "More and more people are becoming aware of the key part played by lubricants. We are spreading that message through training courses for dealers, so that their staff can explain to customers just how important it is."

It is no surprise to hear that Pettersson is an accomplished cook and McCarthy a baker. After all, it is all about getting the right ingredients to work together. And if either of them should offer to make a salad, it will no doubt be delicious – just make sure to get for the recipe for the dressing. ☞



Volvo CE's Dr Anders Pettersson (left) with Leszek Dawidziak, of Cementownia Warta SA

During this interview, Leszek Dawidziak of the Polish cement company Cementownia Warta SA visited the laboratory. He told Pettersson and McCarthy that his company owned a fleet of Volvos, including nine A40 articulated haulers. "I didn't know Volvo CE had this laboratory facility before today," he said. "We used to use 16 trucks from another manufacturer but found we needed only nine Volvo haulers to replace them. They work in a very dusty environment but the air and oil filters mean they are highly reliable. We use Volvo oil and lubricants in all our Volvos – and in a few of the other machines as well. Reducing the number of lubricants required is important to us, as is extending drain intervals, which cuts costs and allows our machines to work longer without interruption."



Guest Conductor Kent Nagano with the
Gothenburg Symphony Orchestra
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Gothenburg Concert Hall
© Sofia Paunovic



Gothenburg Opera House
© Ingmar Jernberg

CULTURAL IDENTITY

Volvo supports the cultural and artistic life of its home town
Gothenburg, Sweden's second largest city

by *Kate Holman*

The Gothenburg Symphony Orchestra (familiarly known as the GSO) and the Gothenburg Opera (Göteborg Opera) both enjoy vital, long-term backing from the Volvo Group. "Volvo's sponsorship is one of the reasons that the Gothenburg Opera exists," says the opera company's business development director Jessica Malmsten. "It's a very important partnership."

Together, the two musical organizations form important pillars of Gothenburg's – and indeed Sweden's – cultural identity. In 1997, GSO was named the National Orchestra of Sweden, recognizing its achievements in raising awareness of

Nordic composers and their music around the world. Volvo's sponsorship has helped them both to establish and develop global reputations for artistic excellence.

"It helps in many, many ways," says Norwegian Sten Cranner, who was appointed in November 2014 as GSO's managing and artistic director. "It enables us to go beyond our core product and fulfill extraordinary projects. It's an extra boost."

"My aim is to make the GSO and the extensive activities in the Gothenburg Concert Hall an important part of life for every citizen in the city and the region," he adds. →

“The orchestra should also continue to play an essential part in Sweden’s musical life, and strengthen its international reputation.”

“We are helping to make Gothenburg an attractive city to live in,” agrees Malmsten. “Through music, theater and dance we hope to improve people’s quality of life.”

COLLABORATION

Cultural support and sponsorship is part of the Volvo brand, underlining the company’s concern for the welfare of its employees and their communities, across all aspects of their lives. Since 1983, it has become the GSO’s main sponsor, and is one of four top supporters of the Opera.

The GSO was founded in 1905, but has experienced moments of drama in its 110-year-long history. Its original home was burnt to the ground in the 1920s, and replaced by the existing Gothenburg Concert Hall. Finished in 1935, it is renowned for its ground-breaking architecture and fine acoustics. The main hall is lined with hundreds of golden sycamore maple panels, which reflect sound without distortion.

Since then, the GSO has doubled in size, and now comprises 109 musicians. A further 86 players, 22 soloists, 46 chorus singers and 38 dancers make up the artistic staff at the Gothenburg Opera. Collaboration between the two groups of artists is growing. During the next two years, several joint projects are planned, including a co-production in 2017 in which opera stars will perform in the Concert Hall. “We have a very healthy and concrete relationship,” says Cranner.

The home of the Gothenburg Opera is an equally impressive building. Volvo was the first company to support construction of the new Opera House, inaugurated in October 1994 and renovated in 2009, which stands on the city’s waterfront. It welcomes 250,000 visitors a year to some 270 performances, including dance, musicals and concerts. Its aim is to reach people of all ages and backgrounds, and encourage them to get involved in the creative process.

For example, last season, in collaboration with the Red Cross, it organized a workshop with a group of newly arrived refugees in Sweden, in which they created new works based on their own experiences.

“We want to build an artistic community that extends to the parts of society that do not always have a voice among the established cultural institutions,” says opera/drama artistic director Stephen Langridge. “We take this side of our work very seriously.”

TOP OF THE BILL

Safeguarding the local environment is another concern, so as well as installing beehives on the roof, the Opera works hard, through generating solar energy and waste recycling, to minimize its impact on the environment.



Jenny Holmgren and Denny Lekstrom
star in Gershwin’s ‘Crazy for You’
© Mats Bäcker

**CULTURAL
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VOLVO BRAND**

The GSO is equally active in the community – both in Sweden and abroad. In April 2015, with Volvo’s backing, the orchestra toured five Chinese cities, and the musicians were particularly proud to be able to perform for young patients in Shanghai children’s hospital.

Over the years, the GSO has been led by a number of outstanding musicians. In 1907, its principal conductor was the renowned Swedish composer Wilhelm Stenhammar, and both Carl Nielsen and Jean Sibelius have conducted their own works. The current guest conductor is American Kent Nagano, while the artist in residence, Canadian conductor and soprano Barbara Hannigan, is one of the world’s leading performers of contemporary opera.

ON TOUR

Volvo’s backing is helping both organizations to prepare a stellar program of events in the coming months. The GSO, which has already performed in the USA, Japan, and the Far East, is on tour in Germany in November. December will mark the start of the Sibelius festival. “We will be performing all the symphonies of Sibelius within one week,” explains Nagano.

The Gothenburg Opera’s offering ranges from the first performance of Alfred Hitchcock’s spy thriller ‘Notorious’ as opera with the world’s leading dramatic soprano Nina Stemme in the principal role, to Gershwin’s ‘Crazy for You’, to a celebration of the works of Shakespeare in 2016 – 400 years after the writer’s death – with concerts and operas based on *Hamlet* and *Macbeth*. Dance is another important string to the Opera’s bow, and the Danskompani, led by dance artistic director Adolphe Binder, has won international acclaim and worked with top choreographers such as Sidi Larbi Cherkaoui.

GSO is proud to be in the vanguard of digital musical transmission, with free livestreaming of concerts and video on demand, together with interviews and backstage chat.

“Our digital concert hall can be watched around the world,” declares Cranner. It is available at www.gsoplay.se

Visit the *Spirit* website or download the *Spirit* app to see a video



GSO managing/artistic
director Sten Cranner
© Dan Holmqvist



The opera’s dance artistic
director Adolphe Binder
© Mats Bäcker



The Gothenburg Opera plays to a packed house

SUPERIOR PERFORMANCE

A Chinese operator sings the praises of Volvo's A40D articulated hauler →

by Michele Traverso



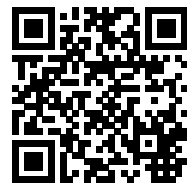
Photographs by Daniele Mattioli

HONEY, I

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VIDEO

A new video from LEGO® Technic shows the lengths the world's largest toy maker's design team were prepared to go to in order to perfect their latest mini marvels. See how this happened at [youtube.com/GlobalVolvoCE](https://www.youtube.com/GlobalVolvoCE)



Volvo Construction Equipment





The Shanghai Laogang landfill, operational since 1989, is the largest landfill in China and site of one of the largest landfill gas-to-energy projects in Asia (see page 16). Operated by Shanghai Old Port Garbage Disposal Co Ltd, the landfill is a joint venture between the French company Veolia and the municipal government.

Thanks to their reliability, four Volvo A40D articulated haulers on site will eventually be joined by more Volvo machines as other equipment reaches the end of its working life – this is a place where machines grow old fast. But the Volvo haulers come into their own in slippery conditions where other trucks find it difficult to operate.

Operator Xu Nong Ming collects soil with his Volvo hauler to cover the growing mountain of garbage dumped by trucks arriving at the rate of one every 30 seconds to help contain the waste and its leachates. The Volvo haulers are also used to move the leachate itself – up to five loads a day – and sometimes the actual waste.

GAME PLAN

Even when the wheels sink into the mud, the operator can engage and disengage different drive combinations while on the move.

“It also helps that it has a high vehicle base,” says Xu, who started driving at the Laogang landfill in 2005.

Xu – surnames come first in China – began his career in the military, which is where he learned to drive. “I joined up in December 1993 and served in Hangzhou,” he says. “It’s safer working with Volvo haulers,” he adds with a smile.

A jovial 45-year-old local, Xu hails from Pudong, a large area of the Shanghai municipality east of the Huangpu River. Until 20 years ago, Pudong played underdeveloped second fiddle to Shanghai’s Puxi, the area west of the river and site of the old town. Today it is the newest, shiniest, skyscraper-

filled part of the city, home to the stock exchange and other financial institutions as well as the international airport and, south of it, the Laogang landfill where Xu works.

In his spare time, Xu is an aficionado of mah-jong, the popular Chinese game of skill and strategy played with numbered tiles. Played in groups of four, either indoors or more often than not at the side of the road on improvised tables, mah-jong inevitably attracts groups of onlookers. Xu also enjoys fishing in his free time and says he eats his own catch, although he admits: “I haven’t caught a big fish yet, only small ones.”

DAY JOB

Xu’s standard eight-hour workday starts at seven in the morning. “When we reach the site, we check the equipment, and monitor and conduct fleet repair and maintenance,” he says. The rest of the day is usually spent humming along the dirt tracks that circle the landfill, collecting and moving the soil used to cover the latest fresh layer of garbage.

Xu is a big fan of the hauler’s superior off-road performance. “Even fully loaded, the A40D never gets stuck in the mud,” he says. The wide-base tires give low ground pressure and good off-road mobility. “Even when the wheels sink into the mud, its all-wheel drive and large tires get it moving easily.”

Coming from the army, Xu did not find the newer haulers used at Laogang as complicated as he had feared. “I thought the machine would be harder to operate because it is fully automated. However, with the articulated steering, it’s actually easier.”

He’s been won over by the Volvo machine: “In terms of carrying capacity, utility and efficiency I would choose the Volvo for its sturdiness.”

EVEN FULLY LOADED, THE A40D NEVER GETS STUCK IN THE MUD

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Volvo Construction Equipment

