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AeroFocus

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Looking back on **100 years** in Dorking

2024 marked a remarkable milestone for Bucher Municipal UK as we celebrated our 100th anniversary in Dorking



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Here's to cleaner, safer and more efficient **airports**



Martin Starkey

Our legacy of innovation continues with ground-breaking advancements in airport sweeper technology, designed to meet the unique challenges of your high-stakes environment.

As we enter the new year, I am delighted to share the latest issue of our dedicated airport magazine, AeroFocus.

2024 marked our centenary in Dorking and we celebrated 100 years of engineering excellence. Our legacy of innovation continues with ground-breaking advancements in airport sweeper technology, designed to meet the unique challenges of your unique and highly demanding environment.

The Bucher Municipal airport team had a busy 2024 showcasing our latest airport-specific innovations at key industry events, including the Norwegian Snow Symposium in Oslo and the inaugural SWIFT Europe Conference at Heathrow.

In this issue, we share our latest airport innovations: the Bucher MaxPowa V65t, our technology demonstrator hydrogen truck-mounted sweeper unveiled at IFAT 2024, and the Bucher MaxPowa V Series Signature Design (S-Design), which offers unrivalled power and precision for heavy-duty applications, crucial for effective Foreign Object Debris (FOD) management.

Bucher Municipal's airport team understands the critical nature of your role in ensuring safe and efficient operations. We've developed these high-performance sweepers to maximise uptime, minimise maintenance, and deliver superior cleaning results across all airside areas.

As we look forward to the next 100 years of innovation, we remain committed to partnering with you to deliver the highest standards in airside fleet solutions. Here's to cleaner, safer, and more efficient airports!

A handwritten signature in black ink, appearing to read 'M Starkey', written over a light grey rectangular background.

Martin Starkey, Managing Director Bucher Municipal UK

MaxPowa V65h sweeps into Dortmund



Dortmund Airport has welcomed the latest addition to its fleet, the Bucher MaxPowa V65h, sold through Thome-Bormann GmbH, our sales and service partner in Germany.

Dortmund Airport were seeking an innovative winter service solution to collect and recycle de-icing agents after aircraft de-icing. Thome-Bormann GmbH converted a Bucher MaxPowa V65h with a surface extraction system between the axles and offered it to the airport on a rental basis for two seasons. This allowed the airport to trial the equipment and assess its effectiveness in real-world conditions before committing to the long-term.

The Bucher MaxPowa V65h hydrostatic drive was recommended for its exceptional working speed capabilities. This advanced feature allows for a sweeping speed of less than one km/h, which is crucial for airport winter maintenance. The remarkably slow speed enables effective absorption of liquids whilst providing the operator with precise control over the machine's movements. The hydraulic drive of the rear axle is the key to achieving this slow, controlled speed, which proves invaluable when sweeping around the heads of stands or when a thorough deep clean is required.



Patrick Bormann, Managing Director at Thome-Bormann GmbH, comments: "After two highly successful seasons in operation, Dortmund Airport has decided to take over the Bucher MaxPowa V65h for the third year. This decision speaks volumes about the machine's performance and reliability. In preparation ahead of the winter season, the machine is being specially converted for glycol recovery. Once spring arrives, it will be re-equipped with the standard suction unit, allowing Dortmund Airport to optimise their sweeper's tasks across both summer and winter operations. This versatility ensures year-round utility and cost-effectiveness."

The importance of glycol recovery at airports cannot be overstated, it plays a crucial role in minimising environmental impact and protecting the local water table. By efficiently managing and recycling de-icing fluids, airports like Dortmund can mitigate potential pollution risks and ensure more sustainable operations.

If you want to find out more about how Bucher Municipal's range of airport sweepers can support your winter operations, please contact, Global Key Account Manager for Airports Mike Moore:

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Leading the charge with **H₂ydrogen** technology



Decarbonisation is a clear vision across the aviation sector and will require significant change across many aspects of airport operations to achieve Net Zero emission targets.

At Bucher Municipal we are committed to supporting this journey by innovating and developing practical sustainable cleaning solutions for all sectors we work within. Electrified sweepers are being successfully deployed globally, delivering significant carbon reduction measures for operators. We are proud to present our technology demonstrator hydrogen truck-mounted sweeper as the

next big zero-emission development. The machine was first unveiled at the IFAT exhibition in Munich last May.

Powered by an internal combustion auxiliary engine, developed by our major engine supplier JCB, and fuelled by 100% hydrogen, the MaxPowa V65 provides a

The only tailpipe emissions from the
Bucher MaxPowa V65t are water vapour...





practical and sustainable sweeping solution for airport applications with its extended range and fast refuelling time. The innovation brings a sustainable, efficient, and cost-effective solution, yet also maintains the simplicity and robustness of our tried and tested twin-engine sweeping technology.

The vehicle has the potential to revolutionise the industry, its innovative technology harnesses the power of hydrogen, enabling equipment to deliver unparalleled performance with zero carbon emissions and the following operational benefits:

1: Zero carbon emissions for cleaner air: The Bucher MaxPowa V65t's hydrogen technology ensures that only water vapour is emitted, eliminating sweeper CO₂ emissions at the point of use. This significantly enhances air quality, creating a healthier environment for passengers, staff, and the surrounding community.

2: Enhanced operational efficiency: Powered by an internal combustion engine fuelled by 100% hydrogen, the Bucher MaxPowa V65t offers an extended operational range. This allows for longer periods of uninterrupted service, which is essential for the continuous and demanding maintenance schedules of busy airports.

3: Rapid refuelling for minimal downtime: Hydrogen technology allows for fast refuelling via an industry-standard WEH nozzle, reducing downtime and ensuring the vehicle is quickly back in operation. This is vital for maintaining high-traffic areas with minimal interruption.

4: Cost-effective sustainability: The Bucher MaxPowa V65t combines sustainability with cost-effectiveness, leveraging the simplicity and robustness of tried and

tested Bucher Municipal technology. Airports can achieve their environmental goals while maintaining budgetary efficiency.

The V65t hydrogen sweeping equipment is mounted to a DAF chassis converted to dual fuel by ULEMCo. Taking a production diesel chassis and converting the fuel system to run on a mix of hydrogen and HVO provides up to 96% "well to wheel" carbon reduction compared to diesel fuel. Various chassis manufacturers have announced trial projects with hydrogen but currently, there isn't a sweeper suitable variant on the market, so for our initial technology demonstrator a dual-fuel chassis provided the logical solution.

Dan Taylor, Product Manager at Bucher Municipal explains how the project will progress: "With the technology demonstrator, we aim to gather further market research and feedback from customers before hopefully progressing to series production. Initial interest has been strong, and customers are keen to understand the options around sustainable solutions before committing to a direction. We foresee hydrogen will complement electric options and be the go-to fuel when high-performance, heavy-duty cleaning is required and where duty cycles or grid capacity cause operational constraints. For many airports, hydrogen could play a big part in the decarbonisation strategy for ground equipment, and we are excited about how we can support the V65t hydrogen product."

Bucher Municipal is leading the way for sustainable airport maintenance with cutting-edge solutions that reduce environmental impact while maximising efficiency. Contact the hydrogen product team at h2tms@buchermunicipal.com to find out more about the hydrogen-powered truck-mounted sweeper.

Celebrating 100 years

2024 marked a remarkable milestone for Bucher Municipal UK as we celebrated our 100th anniversary in Dorking. This centenary year is a testament to our enduring legacy and innovation in developing world-leading truck-mounted sweepers from our Dorking-based global competency centre.



During 2024 we looked back on the history of our site, people, and products whilst continuing to do what we do best - leading the way with the next generation of sweepers.

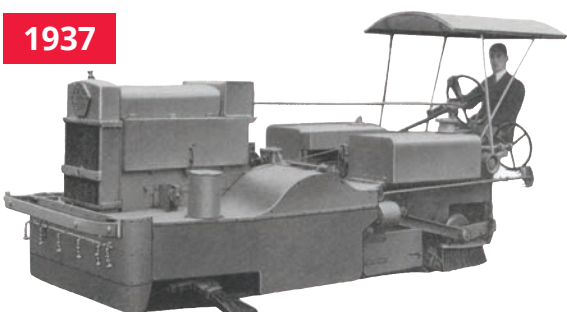


1924

W L Bodman Limited was purchased by The Road Plant Construction Company, a subsidiary of Johnston Brothers, on 11 August 1924. This is where our 100 years in Dorking began.

The Dorking site produced its first mechanical road surface cleaner, representing a vast innovation in road sweeper design.

1937



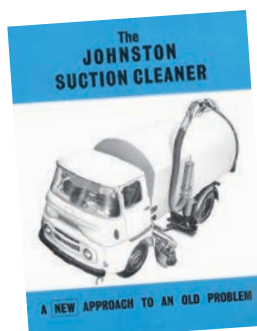
Late 1930s

Supplied vital equipment to HM Forces, including gritters, sweepers and snowploughs for both home and overseas military requirements. The RAF ordered at least two Johnston snowploughs for each of their 60+ airfields.



Early 1950s

'The Scavenger' was designed. A mechanical sweeper towed behind a collecting truck to recover litter and leaves from the highway. The success of this machine led to a commitment to design and develop a fully functioning vacuum suction sweeper.



1960

The world's first truck-mounted sweeper, the Mk1, was launched at the 1960 Public Works Exhibition in London.

1965

The Dorking site delivered its 500th sweeper, it was now supplying over 80% of the UK market.

1970s

A Johnston 200 Airport Series next to a British Caledonian Boeing 707 at Gatwick Airport. Before miniature video cameras were available large mirrors were fitted above the cab and glass panels in the roof.

1979

The 450 Airport Sweeper (a variation of the 400 Series) was launched. It had outrigger brushes and broom-assisted nozzles to sweep large aircraft stand areas. It was also fitted with a front-mounted magnet for retrieving metal objects from runways and taxiways.

1986

Product range widened with a move into the Compact sweeper market and the acquisition of Babcock Sweepers Limited of Sheerness.

**Late 1980s**

The award-winning 600 Series launched with three revolutionary new technical developments – significantly reduced noise, simplified design, and an ingenious new fan drive system.

**1996**

Purchase of BEAM, producers of heavy-duty bespoke specialist runway sweepers and airport stand cleaners.

2003

Launch of the V range – complete redesign of the whole TMS range.

BEAM VX1200 Sweeper at Heathrow Airport.

2005**2017**

Developments for the first all-electric truck-mounted sweeper begin.

**2018**

Bucher Municipal launched the first all-electric truck-mounted sweeper in the industry developed at Dorking. Development starts on the first fully autonomous sweeper.

2020

Production of the Bucher A9500 High-Speed Airport Sweeper began at Dorking in 2020. The prototype was tested at Dunsfold Airfield, home to the Top Gear studio and track.

The Bucher MaxPowa V95t aero and the Bucher Airport Team, Dan Taylor Product Manager and Mike Moore Global Key Account Manager.

2024

People through time...



In the past 60 years, we have benefitted from the dedication, expertise, and innovation of only two engineering directors, Tony Duthie, and our current UK Engineering Director, Clive Offley, pictured left.

Supporting **Airport** infrastructure



Refurbishment of runway and taxiway infrastructure is critical to ensuring the continued safe operation of the airport or airfield. The work usually happens as day-to-day airport operations continue, often during the limited hours of a night shift window, so fast and effective completion is essential.

The nature of the work conducted means associated debris is larger in volume than would be typically found during routine airport sweeping. To avoid construction-related debris produced during infrastructure works causing a hazard to aircraft as FOD, intense sweeping and cleaning are necessary. The clean-up is often conducted by a specialist sweeping contractor who works alongside the civil engineering team conducting the primary works.

Bucher Municipal V Series machines are a popular choice for specialist sweeping contractors with their high sweeping performance, robust durability, and an array of specialist options.

Munihire is a specialist contractor based in West Sussex with a long-standing reputation for high-quality work

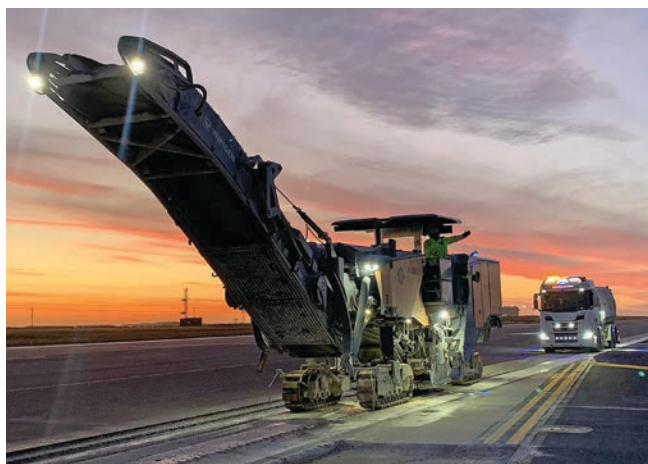
on large projects in the UK and internationally. Working across many sectors, Munihire has a dedicated sub-brand, Brooking Hire, with a specialist airport team and fleet. Munihire acquired Brooking Hire in February 2022, which was a turning point in its growth within the aviation sector. Brooking Hire remains a company and brand within the Munihire group, and the fleet currently consists of 18 Bucher sweepers made up of V80, V120, and XPowa V140 variants.

Managing Director Lawrance Webster details some projects his teams have delivered, supported by Bucher Municipal equipment.

In 2023, The Defence Infrastructure Organisation (DIO) completed an £8.9 million project to resurface the alpha



Brooking Hire remains a company and brand within the Munihire group, and the fleet consists of 18 Bucher sweepers made up of V80, V120, and XPowa V140 variants.



loop at Mount Pleasant Complex airfield on the Falkland Islands. The project involved the replacement of 9,400 Sq m. of 40-year-old concrete with the latest runway-grade asphalt material. A critical element of the process was cleaning the surface after the concrete removal before laying the new material to ensure effective adhesion.

Brooking Hire organised the logistics and provided operator and operational support for the Bucher MaxPowa V120, which was shipped from the UK to the Falkland Islands. The V120 machine was used for its powerful suction performance and specialist options, including high-pressure water jetting and full-width rear suction nozzles. The impressive 12 cubic meter hopper capacity and 10-tonne payload provided long on-station time and supported the project completion in less than a month. The works included a final surface clean before the first aircraft used the resurfaced Alpha Loop on the day it was completed.

Brooking Hire's success has been instrumental in the company gaining an additional contract for a larger project later this year. This will involve shipping three specialist Bucher Municipal sweepers to the Falklands to resurface the Foxtrott taxiway and main runway threshold – an area covering 20,000 sq m. The repairs need to be completed quickly, before March 2025, and the start of the South Atlantic winter, as poor weather conditions make construction nearly impossible. The ability of Munihire to mobilise quickly, organise the team, and ship equipment over 8000 miles was instrumental in achieving the additional contract.

Lawrance comments: "Our machine fleet is modern and well maintained, we have taken innovative products

from Bucher including single-engine Bucher Municipal MaxPowa V80m machines. Running the sweeper systems from the PTO on the chassis engine has reduced fuel consumption and carbon emissions while minimising operational costs. Our airport fleet is also HVO compliant, helping to reduce carbon emissions while supporting infrastructure at many of the UK's major airports, including the busiest, London Heathrow."

Munihire's investment in the aviation sector including procurement of specialist machines such as the Bucher MaxPowa V80 and V120 machines, safety systems, and aviation-specific processes means the company is well placed to not only support infrastructural projects airside but also provide a range of specialist cleaning and sweeping activities on and off-airport.



An impressive line-up of 6 of the Brooking Hire fleet awaits airside for a resurfacing job of Heathrow Airport's main runway – a 4-year ongoing project.

Foreign Object Debris (FOD) detection and removal is a critical safety measure for airports globally. FOD is described as any material (including loose articles) that originates from any source, either external to or part of an aircraft, which can cause damage to that aircraft or its equipment. Damage caused by FOD is estimated to cost the aviation industry \$4 billion annually.

Keeping airports free of FOD



together4safety

Many activities around the aerodrome and on aircraft generate FOD, so it's important to have a proactive FOD-prevention plan in place.

There are many sources of FOD, including:

- Generated by aviation personnel while working, particularly maintenance and servicing of aircraft or equipment.
- Generated by passengers walking to or from the aircraft or during the flight. Cabin waste on the apron can cause a big problem.
- Aerodrome equipment such as the aerodrome pavements, lights or signs.
- Environmental factors such as wind or heavy rain that could blow or wash FOD from other areas.
- Aircraft, vehicles or other equipment as they move around the aerodrome.
- Sea birds dropping shells or other debris.

Every airport has its own specific challenges regarding FOD sources and requirements for management and control; however, all operations require a comprehensive prevention plan. Complacency towards FOD can lead to significant and catastrophic results, affecting airlines, airports, military bases, passengers, and personnel.

The result of FOD interacting with aircraft on take-off or landing has the potential to cause major engine damage, puncture tyres, damage control systems, damage flight surfaces or rupture skins and tank structures with the knock-on consequences having potentially fatal implications.

A FOD-prevention plan of training, inspection, maintenance, and coordination between all invested parties can eliminate the risks surrounding FOD and its associated consequences.



Düsseldorf Airport Safety Team lead their twice yearly FOD walk.



The FOD Father enjoying the Düsseldorf Airport Retro FOD display, showing it's an ever-present safety topic.



So, what does a 'good' FOD prevention plan look like?

Head of Safety Promotion at European Union Aviation Safety Agency (EASA), John Franklin, advises: "If you remember one thing when it comes to FOD – remember the phrase "Clean as you go" whenever possible. Never leave something for someone else to pick up or clear away."

"A proactive FOD prevention plan should include inspections and other methods for detecting FOD. Then effective equipment to remove that FOD safely."

An airport sweeper is the most effective equipment for removing FOD from airside. All airside areas, including aircraft manoeuvring areas, aprons and gates, and areas nearby, should be swept routinely. The airport sweeper removes debris from cracks and pavement joints and should be used in all areas except for those that can be reached only with a hand broom.

High performing airport sweepers benefit from additional features such as specialist multitask sweeping, magnetic bars and pickup systems allowing pick up of a range of debris, including fine dust, FOD and liquid such as glycol or surface water.

To find out more about Bucher Municipal's range of airport sweepers, contact Global Key Account Manager for Airports Mike Moore:

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Dorking globetrotters



It was a busy 2024 for our Bucher Airport Team, from Dorking to Oslo, we travelled far and wide to showcase the latest innovations, providing efficient, high-performance, and sustainable solutions for our customers.

Norwegian Snow Symposium, Oslo - March 2024

200 airport managers from over 20 countries gathered for the 4th Norwegian Snow Symposium hosted by Øveraasen at Oslo Gardermoen Airport. The event focused on safe, efficient, and sustainable winter airport operations with live demonstrations of the award-winning Bucher CityCat V20e and Bucher VR50e compact sweepers, along with the Bucher MaxPowa V95t aero.



Bucher MaxPowa R65t photo shoot - June 2024

The Dorking factory has completed a substantial order of Bucher MaxPowa R65t units for Cairo Airport Cooperation. Taking advantage of this milestone, the Bucher Airport Team showcased their latest innovation – a new side blast option – during a product photo shoot at the largest business aviation airport in the UK.

IFAT, Munich - May 2024



Bucher Municipal showcased its latest innovations, including second-generation electric vehicles, a hydrogen-powered truck-mounted sweeper, the newest snow ploughs, and the German Innovation award-winning Advanced Driver Assistance SafeSweep & PathFollow Systems. With a record-breaking 142,000 visitors from 170 countries and regions, the 1,200 m² stand certainly had an impact.



Swift Conference, Heathrow - June 2024



The Bucher Airport Team attended the inaugural SWIFT Europe Conference & Expo at Heathrow Airport. SWIFT (Summer Winter Integrated Field Technologies) is the premier event for the airport community to explore cutting-edge innovations in airside operations. Mike Moore met with Bucher Municipal Airport clients to showcase developing new technologies and methods to meet the changing demands of our industry.



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Bucher Municipal
Focusing on functional
engineering, environmental
integrity, people's needs and
continuous innovation.



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At Bucher Municipal, we innovate and engineer better cleaning and clearing solutions, helping our customers grow and maintain efficient and profitable businesses. Leveraging the over 200-year-old heritage of Bucher, we are committed to helping you achieve more using less. Taking pride in being seen as a reliable partner, we work locally with you in realising the possibilities for a smarter, cleaner and more efficient tomorrow. Today.



Driven by better



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