CIVIL CONSTRUCTION SOLUTIONS

Aptella
AUTOMATION + POSITIONING TECH

Why Aptella

We’re there when you need us

With more than 30 years’ experience in the civil construction industry, Position Partners and its founding businesses have continuously broken new ground in the application of positioning and machine control technology to enable safer, more efficient and more productive construction methodology.

Aptella’s expert team is unrivalled in the industry - our people are passionate about what they do and committed to supporting our customers whenever and wherever they’re working.

With more than 350 employees across Australia, New Zealand and Southeast Asia, no other company can deliver the depth of expertise and boots on the ground support that Aptella has to offer. We source the latest and most advanced technology from leading suppliers worldwide, ensuring it is fit for the local market and assisting customers with training, service, calibration and support to suit their unique business needs.

Workshop services

Comprehensive product service, maintenance, repairs and advice are provided via our local service centres with manufacturer-trained technicians. We guarantee all our work and can supply calibration certificates if required.

Training

Our expert trainers are here to help you get productive immediately and enable you to take control of your digital jobsite. Our training is application specific and tailored to your industry, providing the perfect foundations to tackle any task or project.

Hire or lease options

A full range of systems, from laser levels through to machine systems and survey instruments, can be hired or leased to suit any application and reduce capital outlay. Get the flexibility to customise technology to suit unique site requirements.

Manage Everyone Working To A Design From A Single Interface

Tokara is the gateway to every machine and survey asset in the field

For all machines & survey assets

Aptella are the retrofit experts, specialising in sourcing and supplying machine-agnostic solutions for your mixed fleet

Site-wide change management

Our team works with you to customise solutions that compliment your existing workflows and simplify your day-to-day operations

Fast support a phone call away

The combination of remote access support and a large, local network of field technicians delivers unrivalled support

Remote Access & Support

Tokara lets you remotely access the screens of your machine control and survey instruments with a single click

Access Topcon and other factory or aftermarket devices remotely

Send & receive messages to operators, surveyors & managers.

Tokara plans for civil systems

To ensure that your machine control and survey equipment is always performing at its best, the team at Position Partners is here to support you. Our highly trained specialist technicians are committed to providing the highest quality of service, with Tokara support hubs dedicated to ensuring requests are quickly actioned to maximise your machine uptime.

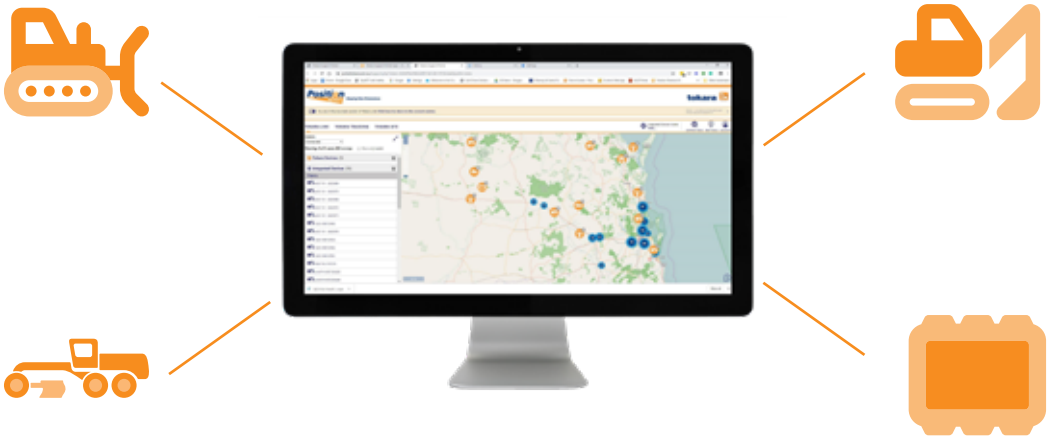
Our comprehensive plans combine the benefits of Tokara with access to our technical experts, to give contractors and project managers peace of mind that technical assistance, operator training and remote updates are available as needed, reducing the need for on-site visits.

Tokara Office

Manage design files across all devices from a single portal

Tokara Office is designed for surveyors, contractors and managers to proactively control the design file management process across a fleet of machines and rovers.

Whether you're working on one site or managing your fleet across several projects, Tokara helps you to ensure everyone is working to the correct design file.



One to mant file transfers, multi-brand

Instantly send design updates to all machines and supported survey rovers, including mixed brands of machines & positioning technology

File transfer history by machine, device or group

View what files were sent with the date and time sent as well as the date and time downloaded

Colour coded file status for proactive management

View when an operator has downloaded and is working to the latest design, or if it has been sent and not downloaded

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Your World On a Map

View and access critical information at a glance

View the machine or device type, online status, connection strength and last known location (updated every 10 minutes) and more

Interactive map to create group or measure

Draw the boundary of a project to create a new geofenced file group. Use the ruler feature to measure distance between CORS GNSS bases and devices

LIve filters to get the data you need

Filter your assets by status, file group, serial numbers, name or any other parameters you use to organise your assets and check their status

Visualise your design and identify black spots

Tokara enables you to overlay KML files and drone imagery on the map, giving you a design reference for where assets are working. UHF and cellular signal strength overlays alert you to any black spots on site.

Additional info & reporting

Machine calibration files or build files

View both current and historical machine calibration or build files. Restore previous builds using backed up data.

Current Network RTK session info

View the connection information to CORS Network including login details and the base station connection

Create serialised hardware reports

Report on your trackable machine control and survey components via serial number, name, or custom parameters

Reporting your way

Setup scheduled GNSS usage reports with the option for detailed summary, weekly summary or yearly summary.

Online status alerts

Set up Tokara to email alerts when machines and devices are next online.

iMEX Lasers

Pipe Lasers

The all new iMEX IPL3 series pipe drainage lasers have new wireless remote setting, auto track on-grade and the capability of fitting a 100mm PVC pipe. With interchangeable feet for a variety of pipe sizes, a huge -20% to +40% grade and fully submersible IP68 rating the new iMEX pipe lasers are set up for the most demanding tasks.

- 300m range
- Electronic levelling
- Auto tracks target plate
- -20% to +40% gradient
- Lock-out grade (for solar farm pile driving)
- 8Ah lithium-ion rechargeable

i66R

Rotating Laser

The class leader in economical lasers, the iMEX i66R is the best laser for everyday general levelling. Features a digital mm reading detector and a one button function for quick and easy set-up, lithium-ion battery for long run time and robust fully enclosed laser diode for excellent results for a variety of trades.

- Self levelling
- 400m diameter range
- 600 rpm rotation speeds
- LRX6 German made mm reading detector
- Out of level warning light

i77R

Rotating Laser

The iMEX i77R is the robust all rounder for general levelling. Designed specifically for groundworkers, concretors, landscapers and general building professionals it has a huge 600m diameter range and a 5° slope mode combined with a 90mm pick-up mm reading digital detector.

- Self levelling
- 600m diameter range
- Manual slope mode to 5° (9%)
- LRX10 German made mm
- reading detector
- Out of level warning light

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i88G/R

Rotating Laser

The i88G is the most versatile and feature packed rotary laser in the iMEX range. With manual dual slope and available in red or green beam to suit both indoor and outdoor use.

- Self levelling
- 600m diameter range
- Manual slope mode to 5° (9%)
- 4 rotation speeds
- LRX10 German made mm
- reading detector

2D Machine Control

iDig

iDig is the world's best portable 2D Machine Guidance System for excavators. With wireless, solar powered sensors and a "Clip in – Clip Out" touchscreen the iDig can quickly be moved from machine to machine, offering accurate guidance for multiple attachments on a wide range of jobs, all with one system.

- 2D depth, height and reach with Single and Dual Grade Guidance
- Depth and Alignment Guidance for Auger Drill attachments
- Intuitive with built-in help menu
- Tilting Hitch or Bucket and Blade upgrades available

System 5

Skilled machine operators are becoming scarce. Jobsite pressure is always there. The need for production is constantly rising.

Topcon machine control systems bring that bit extra to ensure deadlines are being hit and earthmoving results are accurate to the millimetre. Move between multiple 2D machines.

GX-55

The GX-55 is designed to handle rugged field conditions as well as harness the powerful processing power needed to instantly display real-time position and project design information.

- Integrated light bars for quick visual reference to grade
- Lightweight, compact design
- Large button and touch screen built for operator hands, not office hands
- Responsive, easy-to-use Windows operating system
- Upgradable to 3D applications
- Move between multiple machine types
- 2D and 3D compatibility

Additional Elevation Control

Take your 2D machine control to the next level with Topcon elevation control sensors for tight 2D tolerance and slope work.

- Sonic trackers
- Laser receivers
- Tracker jacks

Mass Haul & Weighing

Loadex 100

on-board weighing solutions for excavators

This easy-to-use system gives operators accurate bucket weight information at their fingertips, to increase productivity and reduce machine wear.

With the ability to store data for accurate record keeping, traceability and stock management, Loadex 100 is a flexible solution that can be customised to suit a wide range of earthmoving applications, attachments and accomodate a variety of active jobs simultaneously.

Loadmaster α100

on-board weighing solutions for loaders

Loadmaster α100 has been designed to operate within the fastest loading environments and toughest of conditions compensating for uneven, sloped ground and restricted loading areas reducing cycle times and maximising tons per hour performance.

Loading correctly first time eradicates return trips to the stockpile reducing vehicle movement, fuel usage and machine and tyre wear. Plus, you can opt for a Trade verison that enables you to transact from your weight figures.

Weighlog α10

on-board weighing solutions for compact loaders

Loading correctly first time maximises productivity, reduces vehicle movement, fuel usage and machine and tyre wear.

Suitable for use with up to 10 different attachments e.g. buckets or forks, the system can be retrofitted onto compact wheeled loaders, telescopic handlers, forklifts and skidsteer type loaders.

GNSS: The heart and soul of machine control

Manage design files across all devices from a single portal

Applications

- Subdivisions
- Wetlands
- Bulk earthworks
- Carparks
- Industrial subdivision
- Sports fields
- Freeways
- Airports
- Rail
- Landfill
- Landscaping
- Golf courses
- Batters
- Sewer & drainage
- Gas lines
- Basements
- Footings & foundations
- Dredging
- Dams

Have it your way

Single, Twin or Dual GPS options

Only Topcon gives you the flexibility to power up your machine with the right GNSS setup to suit the work you're doing.

Single = one GNSS antenna

Great for a wide range of applications, however with only one 3D position it does have limitations:

- Unable to work in reverse
- Unsuited to steep slopes as it can give an elevation error
- struggles when machine is moving quickly

Twin = two GNSS antennas on the same mast, using a diamond bracket

Topcon is the only manufacturer to offer this solution. Two antennas give you two 3D positions and that has a number of advantages:

- Always know your heading even when working at speed or in reverse
- Ideal for grading as operator can roll the blade accurately and without a slope sensor
- More accurate elevation than single or dual GNSS setups, especially when working on changing mainfall grades and steep slopes
- Easily switch between other positioning systems such as lasers, sonic trackers, or LPS total station solutions

Dual = two GNSS antennasmounted on two separate masts

Dual setups are most common on excavators as they enable the machine control system to always track the position of the boom.

On graders, dual GNSS eliminates the need for rotation, slope and mainfall sensors.

- Always knows the position of the cutting edge and blade direction
- Good for working on steep slopes
- Unlike a twin setup, you cannot switch to different positioning technology e.g. laser or total station system, without first installing rotation, slope and mainfall sensors

GNSS Survey Instruments and Correction Services

GNSS Survey Instruments and Correction Services

Position Partners offers multiple options for GNSS corrections on site, from solar powered site bases and repeaters, to Network RTK subscriptions and our MiRTK alternative to UHF service.

HiPer HR

Advanced GNSS Receiver

Part of our Elite Survey suite, it's highly configurable and designed to grow with you. You can track every satellite signal above, and handle any job that comes your way.

- Next generation Fence Antenna® technology for superior reception
- Unique 9-axis TILT™ compensation
- Internal Wi-Fi and multi-spectrum Bluetooth®
- LongLink™ interference-free communication, up to 300m range

HiPer VR

Versatile GNSS Receiver

The HiPer VR is small and light, but don't let its small size fool you. It's not only packed with the most advanced GNSS technology, it's also built with a rugged housing – not weak plastic – to take the punishment of the job site.

- Universal Tracking Channels™ for all satellites, signals and constellations
- Field-tested and ready IP67 design
- Compact form factor ideal for Millimeter GPS and Hybrid Positioning™
- Revolutionary 9-axis IMU and ultra-compact 3-axis eCompass

HiPer SR

Site Receiver

The most compact fully-integrated RTK receiver on the market.

This versatile, affordable cable-free system is just right for small or contained job sites.

- Integrated cellular modem option
- Dual SIM cellular card support
- LongLinkTM interference-freecommunication, up to 300m range
- Ideal for Hybrid Positioning solutionwith robotic total stations
- Perfect as an AllDayRTK networkrover

3D-MC Software

The Engine Behind Machine Control

This easy-to-use system gives operators accurate bucket weight information at their fingertips, to increase productivity and reduce machine wear.

Loved by operators for its easy to use, full colour interface, Topcon 3D-MC software is the engine behind machine control solutions that enables seamless transfer of data from surveyors, project managers and operators.

Why Topcon 3D-MC:

- Multi-view
- Steer to polylines
- Offset grades
- Fully customisable
- Visual and audio alerts
- Work normal to surface or perpendicular to surface
- Avoidance areas
- Move between machines
- 2D and 3D
- Built-in light bars

GX-55 7” display

GX-75 10” display

Rover box										
Antenna Type										
GPS system	Single		Dual		Twin		MC^2		MC^{MAX}	
	auto	indicate	auto	indicate	auto	indicate	auto	indicate	auto	indicate
Dozer	•	•	•	•	•	•	•	•	•	•
Grader	•	•	•	•	•	•	•	•		
Excavator				•						
Compactor	•	•	•	•	•	•	•	•		
Scraper		•		•						
Wheel Loader				•						
Skid Steer	•	•	•	•	•	•	•	•		
Surface Miner	•	•	•	•						
Trencher	•	•	•	•						
Crane / Cable Excavator				•						
Drill				•						
Tow Scraper		•		•						
Light Truck		•								

Final Trim
The Topcon Way:

mmGPS vs LPS - explanation & benefits

mmGPS

This patented technology improves grading accuracy up to 300% over existing 3D-GPS machine systems. Unlike any other laser technology, the PZL-1 transmitter sends out a wall of light 33' tall and up to 2000' in diameter. Simply add the PZS-MC machine control sensor or PZS-1 rover sensor to your existing GPS+ system, and watch your GPS vertical accuracy shrink down to numbers you never imagined before. Not just a laser, 10m fan beam - far higher range capability than a standard grade or construction laser.

LPS

Topcon's Local Positioning System (LPS) is ideal for high precision applications where the machine does not have open sky visibility and is unable to receive consistent GPS satellite signals. Working in built up areas or under heavy tree coverage can limit the performance of GPS-based machine control solutions. Topcon's LPS system is perfect for these conditions, as it uses a Topcon robotic total station to give positioning corrections to the machine.

mmGPS	LPS
Open Sky	Any environment inc. undergroundtreeround
Requires GPS + base/network	Standalone
Larger final trim working zone	Restricted by total station range
Can use with multiple machines & rovers simultaneously	Independent of other machines
Up to 40m elevation change in job, up to 1200m range	Unlimited elevation, but limited to 300m working range
Rover compatible	Rover compatible
Self levelling	

Machines	mmGPS	LPS
Excavator		* (with gyro) run for minutes without line of sight - holds position until connection resumed
Grader	•	•
Paver	•	•
Dozer	•	•
Milling machine	•	•
Compactor	•	•
Skid steer	•	•
Tow scraper	•	•
Trimmer	•	•
Kerb & gutter	•	

Applications

- > Subdivisions
- > Carparks
- > Industrial subdivision
- > Sports fields
- > Freeways
- > Airports
- > Rail
- > Landscaping
- > Golf courses
- > Basements
- > Footings & foundations

Paving

Relative or Absolute?

Is there a pre-defined design?
Tied to project control and elevation?
Incentive on elevation tolerance?
Incentive for meeting the design criteria?
Yes? Then mmGPS or LPS is the answer

Relative to the existing surface?
Incentive based on smoothness?
Incentive based on material quantities?
Looking to correct cross slopes?
Yes? Then 2D or SmoothRide is the answer

3D Paving – mmGPS or LPS

Free your paving from the confines of stringlines and other linear references and move production to the fast lane.

Advantages:

- High accuracy grade reference covers your entire project – eliminating stringline
- mm-GPS provides precise vertical data to multiple machines and surveyors
- Handover with transmitters or total stations for a larger workable area
- Pave complex transitions, even through horizontal and vertical curves
- Share components with other Topcon 2D and 3D machine control systems

2D Paving/Smoothride

Advantages:

- Variable control to suit real world conditions
- Collecting data safely
- Differential compaction calculations
- Saves on materials
- 100% coverage of work area

Intelligent Compaction

- 100% coverage of work area - know you've covered the whole road
- Identify weak zones in road - save rework down the track
- Add accelerometer & temperature sensor to common Topcon components
- Reporting - compaction, temperature, pass count etc

Intelligent Compaction System

Get your compactors working together in harmony with Topcon's intelligent compaction system. The Topcon C-53 system does far more than simply count passes – it optimises the compaction process from start to finish and gives operators and project managers greater visibility over compaction results in real time


SUMITOMO
SUMITOMO

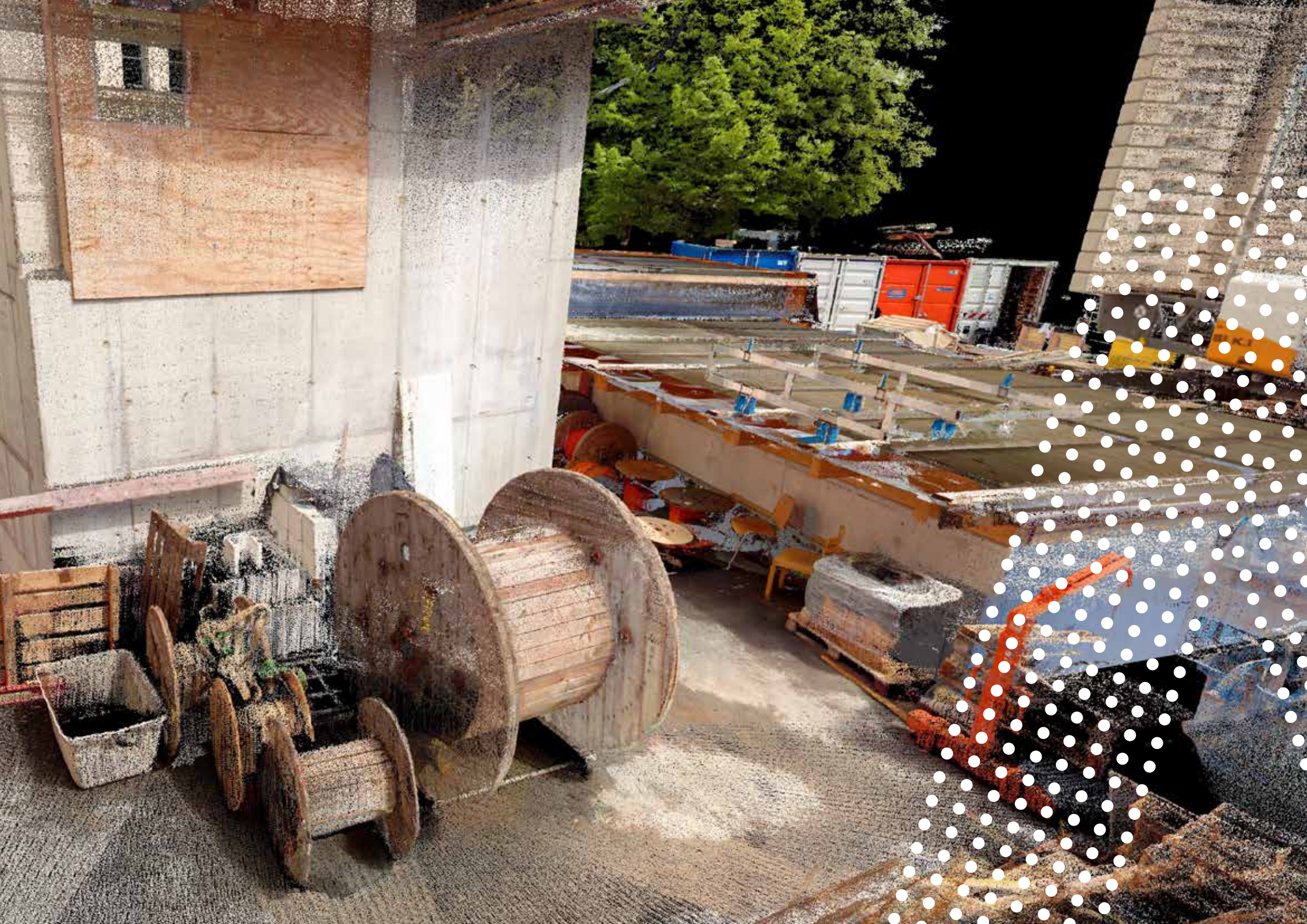
NAVVIS

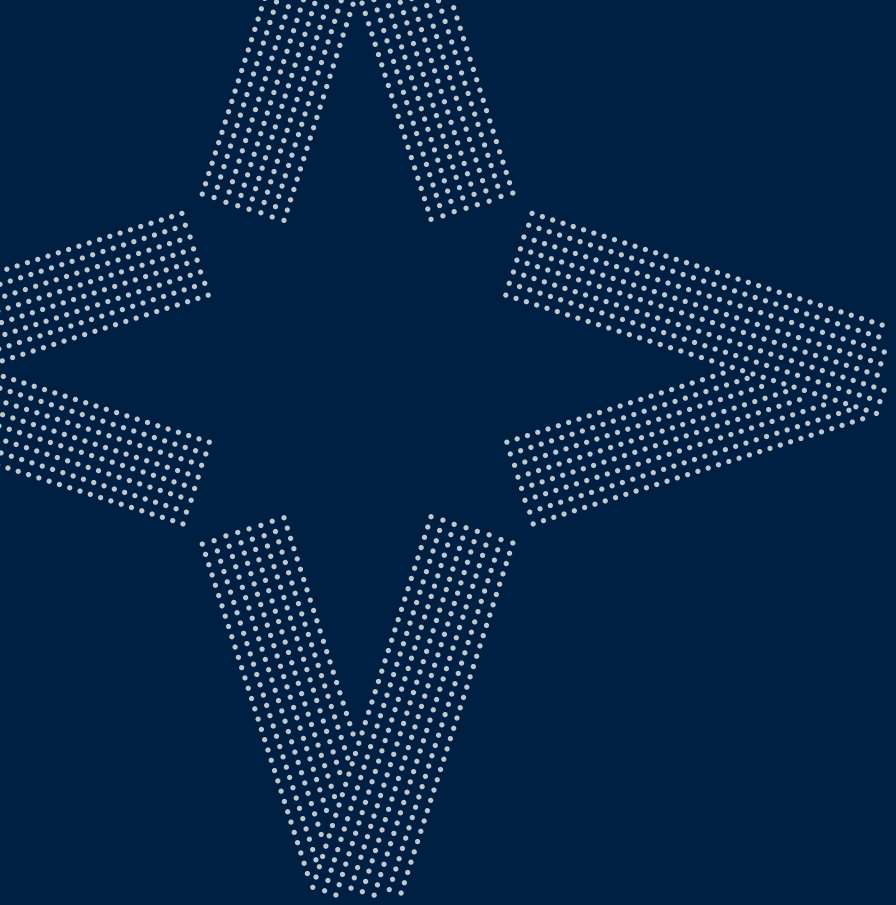
NavVis

Accurate. Versatile. Robust.

NavVis VLX is a mobile mapping system designed for laser scanning and AEC professionals that enables high-quality reality capture of complex buildings and construction sites.

Capture 3D measurements with two multi-layer LiDAR sensors in combination with industry-leading SLAM software to deliver survey-grade point cloud quality. Four cameras positioned on top of the device take high resolution images in every direction for complete 360 capture.





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