VERACIO™

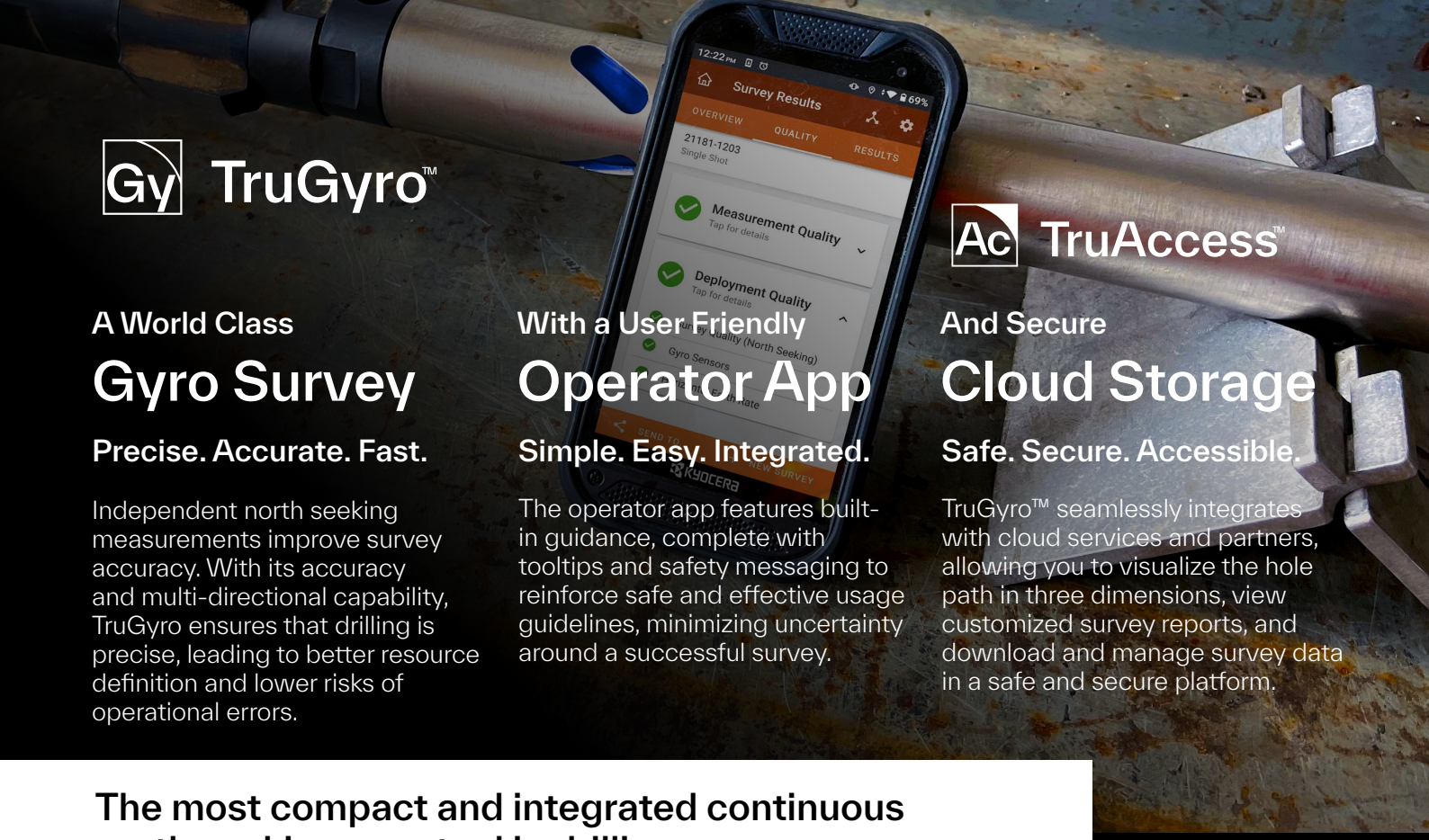
Accurate and Secure Downhole Surveys

EMPOWERING PRECISION AND
INTEGRITY WITH EVERY SURVEY

Gy TruGyro™

Ac TruAccess™

TGAM-250723



TruGyro™

A World Class

Gyro Survey

Precise. Accurate. Fast.

Independent north seeking measurements improve survey accuracy. With its accuracy and multi-directional capability, TruGyro ensures that drilling is precise, leading to better resource definition and lower risks of operational errors.

With a User Friendly

Operator App

Simple. Easy. Integrated.

The operator app features built-in guidance, complete with tooltips and safety messaging to reinforce safe and effective usage guidelines, minimizing uncertainty around a successful survey.

TruAccess™

And Secure

Cloud Storage

Safe. Secure. Accessible.

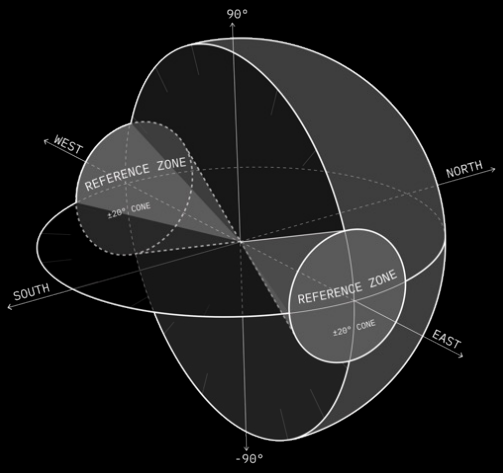
TruGyro™ seamlessly integrates with cloud services and partners, allowing you to visualize the hole path in three dimensions, view customized survey reports, and download and manage survey data in a safe and secure platform.

The most compact and integrated continuous north seeking gyro tool in drilling.

Truly Accurate

When targeting difficult to intersect orebodies, confidence in underlying measurements is critically important in both exploration and mining phases.

TruGyro provides verified 3σ (99.7%) confidence on north seeking azimuth measurements with ±0.9° accuracy in most attitudes ranging from horizontal to vertical*, adapting to various drilling needs without the requirement for different tools.



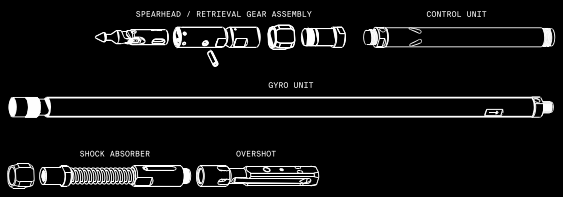
Deeply Precise

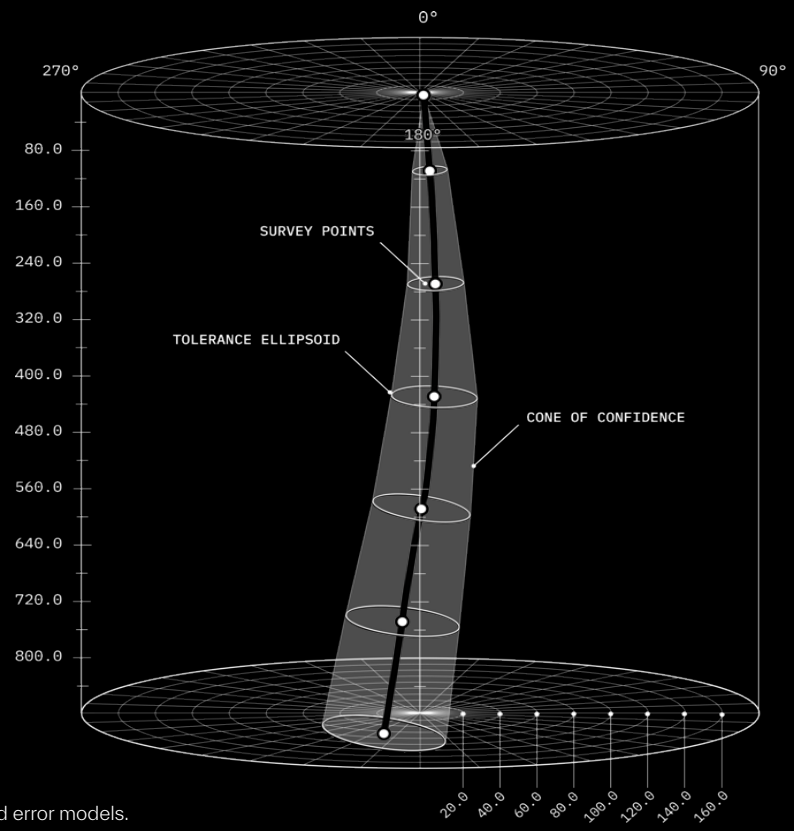
In the intricate realm of downhole surveying, the distinction between precision and accuracy isn't just technical jargon—it dictates the success of operations. Precision is the tool's ability to consistently reproduce results, while accuracy is its ability to produce results that align closely with true values.

Even in considerable depths where slight misjudgments can result in major operational discrepancies, TruGyro's cutting-edge sensors and world-class design ensure that measurements taken are both on the mark and consistent.

☒ PRECISION	☑ PRECISION	☒ PRECISION	☑ PRECISION
☒ ACCURACY	☒ ACCURACY	☑ ACCURACY	☑ ACCURACY

*Does not apply to reference zone within ±20° dip and ±20° from east/west





Unrivaled Confidence

Using a 2000m hole with a dip of -30° and target azi of 135°, a survey taken with a less accurate technology and methodology could mean a difference of up to 46m in the calculated hole path with an additional 51m of potential uncertainty when compared the other commonly used gyro technologies**.

**Does not include continuous measurements which do not have validated error models.

Benefits of Gy TruGyro™ + Ac TruAccess™

Safe and Efficient Operation:

The support for both Link Latch™ and Roller Latch™ overshot assemblies ensures safe and efficient operations.

The fast readings by TruGyro accelerate the surveying process, enabling quicker project timelines and efficient progress.

Enabling Cost Efficiency:

By providing fast and accurate data, TruGyro reduces the cost implications of unnecessary drilling and operational errors.

Supporting Sustainability:

Drill deliberately, reduce waste and promote sustainable mining practices, aligning with global ESG goals.

Integrated Data:

TruGyro's cloud integration and compatibility with other Veracio platforms mean that the data can be easily visualized, downloaded, and managed, streamlining processes for projects.

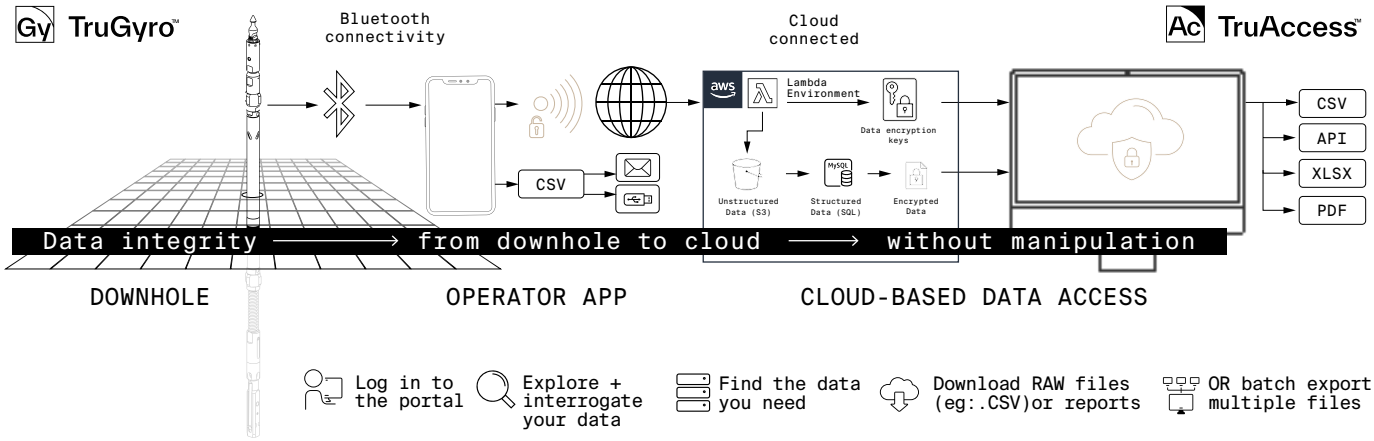
Quality Data:

TruGyro provides highly accurate readings, ensuring confidence in the data, crucial for planning and decision-making stages.

Enhanced Decision-making:

The data generated by TruGyro, integrated with other Veracio platforms, providing valuable contextual information for orebody knowledge. Informing critical resource definition decisions.

Secure user-managed data storage and retrieval



Safety-first Data Management

TruGyro, TruAccess, and our pioneering Data Governance come together in an alliance that reshapes the realm of downhole surveying.

Our Data Governance isn't just about compliance; it's about commitment. A commitment to quality, transparency, and ensuring the data you rely on is both accurate and secure.

Secure Data Portal: Built with stringent security measures, our data portals guarantee that information remains confidential and secure while always prioritizing your data's integrity.

Accessible from Anywhere: With our cloud-connected systems, data can be accessed and reviewed from any location with an internet connection. Freedom and flexibility are at your fingertips.

Complete Integration with TruGyro: Designed to work in tandem, TruGyro and TruAccess provide a symbiotic relationship ensuring smooth and efficient operations without a hitch.

Streamlined Data Flow: With TruAccess, data isn't just automated; it's curated. A carefully crafted flow ensures accuracy, timeliness, and relevance every time.

TRUST AND SECURITY

Privacy + Identifiable Information

Veracio **maintains confidentiality and consent** by safe-guarding both personal and enterprise identifiable data.

Data Breach + Response Plan

Veracio has a robust mechanism for **swift responses** to data breach events, focusing on transparency and continuous improvement.

DATA PROCESSING

Data Acquisition + Storage

Veracio emphasizes **data integrity** from capture to storage, consistent with global data benchmarks.

Vertical Integration

Veracio's **ecosystemic approach** streamlines operations, offering clients enhanced insights and security.

OPERATIONAL EXCELLENCE

APIs + Data Provisioning

Veracio maintains data integrity with **bespoke integrations**,aligned with global data and privacy standards.

Artificial Inteligence

Veracio responsibly **harnesses AI**, ensuring transparency and maximizing value creation.

CONTINUOUS IMPROVEMENT

Scientific Modelling

Veracio uses **tailored scientific models** to optimise for individual project complexities.

Proactive Assurance

Veracio **proactively mitigates risk** for secure and efficient operations. With realisation controls for opportunities.

TRUSHOT™ DIGITAL SURVEY TOOL

TruShot™ is an accurate magnetic survey tool optimized for driller deployment. Made for durability, precision and simplicity, drillers can capture high-quality 3D hole path data with confidence.

THE TRUSHOT ADVANTAGE

SURVEY IS EASIER WITH TRUSHOT
Assemble the TruShot tool with Boart Longyear's high quality running gear and deploy down the hole for accurate azimuth and dip measurement. Ability to complete single-shot, multi-shot and orientation surveys at all angles up to a 4000-meter depth. Captured data is communicated wirelessly from the tool to the easy-to-read, handheld device.

ACCURATE AND IMMEDIATE
Produce accurate surveys with user-adjustable magnetic anomaly detection to flag and filter erroneous data points. Because data is provided in open format, it is immediately accessible and ready to export directly from survey tool and handheld to USB.

FEATURES

WIRELESS COMMUNICATION
Tool and handheld reliably communicate within seconds, eliminating the need for disassembly to start or end a survey.

CHARGEABLE, EASY-TO-READ HANDHELD
Conveniently charge the handheld through USB. Back-lit screen is easy to read with step-by-step instructions and intuitive workflows to minimize operational errors. Large, glove-friendly buttons and vibration feedback make it easy to operate.

USB EXPORT DIRECT FROM HANDHELD
Export raw data directly to USB in generic .csv or .dif formats.

TRUSHOT VIEW SOFTWARE
Included software allows for quick viewing and assessment of each survey shot. Captured downhole data is easily exported to all industry-standard formats.

ROBUST AND DURABLE
Tool remains calibrated and functional even after prolonged field use. Fully sealed and waterproof.

MULTI-FUNCTIONAL
Single-shot, multi-shot and orientation survey functionality.

FIELD REPLACEABLE BATTERY
Tool battery life is long-lasting and can be easily serviced in the field.

To learn more about TruShot, visit **www.boartlongyear.com/trushot**

BOART LONGYEAR™

TECHNICAL SPECIFICATIONS

DIMENSIONS			
Kit			
Length x width x height	112.7 x 40.6 x 15.5 cm		
Total weight	Tool and Accessory Kit: 24 kg (max)	Extension Rod Kit: 14 kg	
Downhole Instrument			
Outside diameter	35 mm		
Length	1000 mm		
Weight	4 kg		
Handheld			
Length x width x height	240 x 115 x 38 mm		
Weight	0.4 kg		
ACCURACY			
Azimuth	Range: 0° to 360°	Accuracy: 0.3°	
Dip	Range from horizontal: ±90°	Accuracy: 0.2°	
Magnetic Dip	Range from horizontal: ±90°	Accuracy: 0.3°	
Gravity Roll (rotation/toolface)	Range: 0° to 360°	Accuracy: 0.3°	
Magnetic Roll (rotation/toolface)	Range: 0° to 360°	Accuracy: 0.3°	
Tool Magnetic Field	Range: 0 to 100,000nT	Accuracy: ±200nT	
TEMPERATURE RATING			
Downhole Instrument	Full Accuracy: 0°C to 60°C	Operating: -30°C to 75°C	Storage: -45°C to 85°C
Handheld	Operating -10°C to 50°C	Charging: 0°C to 40°C	Storage: 0° to 30°C
DEPTH RATING			
Maximum depth	4000 m vertical in fresh water, IP68		
BATTERY			
Downhole Instrument	User replaceable, non-rechargeable lithium		
Storage	Up to 10 years		
Normal use	Up to 3 months		
Handheld	USB rechargeable lithium ion		
Normal use	1 week per full charge		
DATA			
Tool to Handheld Communication	Wireless IR communication, no tool disassembly required		
File Types	Handheld to USB drive: .csv or .dif	Desktop export: .xlsx, .csv, .dsv, .tsv	
View and Export	TruShot View software included with every tool		
LANGUAGE OPTIONS			
English, French, Spanish			
APPLICABLE CERTIFICATIONS			
ASTM D4169, MIL-STD 810G, IEC60068, ASTM B117, AS60529, CE			

Technical specifications are subject to change without notification

To learn more about TruShot, visit
www.boartlongyear.com/trushot

TSHT_080_5-18

BOART LONGYEAR™

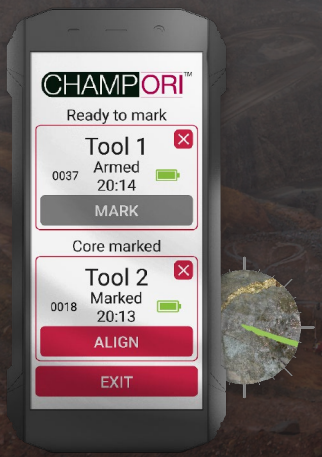
AXIS Mining Technology

Your source for advanced mining technology

Integrated Core Orientation

No Extensions ▪ No Maintenance ▪ Just Drill

CHAMPORI™



- Integrates with standard head assemblies
- No requirement for outer tube extensions or adapters
- Communicate, mark core & drill next run without disassembly
- Reduce orientation transfer error
- No probe battery recharging, cables or plugs
- Maximum kit weight 5.7kg (12.6lbs)
- One kit, one rig, all sizes

Visit us at www.axisminetech.com

A member of the Orica Group

ORICA Digital Solutions

THE INTEGRATED SOLUTION

Axis is the industry leader in delivering measurement solutions which operate within the normal drilling process.

The Champ Ori fully integrates with existing coring hardware by replacing standard components of commonly used inner-tube head assemblies.

The ori tool remains within the head assembly to communicate, mark core and drill the next run – without disassembly.

One kit. All sizes. Just drill.

THE SAFE SOLUTION

Compliance with manual handling safety guidelines is assured by the Champ Ori's average kit weight of 5.7kg (12.59 lbs).

Once installed into the inner-tube head assembly, the ori tool requires no re-charging, assembly or disassembly, reducing handling frequency and risk.

The Champ Ori system does not require outer-tube extensions, diminishing the risk of costly extension failure downhole and resulting hazards.

No handling. No hazards. Just drill.

THE ECONOMIC SOLUTION

With no consumables to purchase or pay for at the end of project, costs are lower in comparison to conventional extension type orientation systems.

Shipping costs and logistical overhead are reduced due to low kit weights and no requirement for heavy extensions or adapters.

Being integrated, inner-tube descent time is not affected in any way as with conventional non-integrated type systems, which can compromise drilling productivity.

No consumables. No maintenance. Just drill.

SPECIFICATIONS

Kit Configurations
AMK3000 : B, LTK60
AMK3010 : N, N2, N3
AMK3020 : H, H3, P, P3
AMK3021 : N, N2, N3, H, H3, P, P3

Accuracy & Range
Range : -88° to +88° dip
Roll : +/- 0.75°
Dip : +/- 1.0°

Temperature & Pressure Rating
Temperature : -30C° to + 60°C (-22°F to 140°F)
Pressure Rating : 6000 psi

Battery
Integrated non-rechargeable lithium battery

Battery life:
- up to 6 months (B, N sizes)
- up to 6-12 months (H/P size)

PDA Handheld
Re-chargeable lithium battery
Standby : Up to 35 days
Operating : Up to 40 hours
Charge time : <1hour

DrillTough™ Handheld
Replaceable AA Alkaline
Operating : Up to 12 months normal use

Dimensions & Weight

Module B
OD : 42.9mm (1.69”), ID : 16mm (0.63”), H : 54mm (2.13”), Wt : 360g (0.79lbs)

Module N, N2, N3
OD : 55.7mm (2.19”), ID : 25.6mm (1.01”), H : 63.4mm (2.50”), Wt : 570g (1.26lbs)

Module H, H3, P
OD : 70.0mm (2.76”), ID : 31.9mm (1.26”), H : 73.0mm (2.87”), Wt : 1,150g (2.53lbs)

Shipping
L : 350mm (13.78”), W : 290mm (11.42”), H : 195mm (7.68”), Wt (avg) : 5.71kg (12.59lbs)

Technical specifications are subject to change without notification.

AXIS Mining Technology

Your source for advanced mining technology
www.axisminetech.com