BlastGyro™

INERTIAL sensing

SUPER COMPACT BLASTHOLE GYRO

No winch required
Low weight
Ultra slim

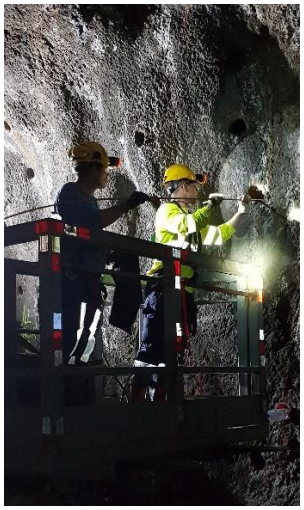
BlastGyro™ The BlastGyro™ is a unique survey system designed for efficient surveying of production blastholes. At the heart of the system is the world's slimmest survey gyro – the integrated SlimGyro™. The length of the integrated SlimGyro is 140 cm, with an outer diameter of only 25 mm and a weight of 3.0 kg.

The light weight and compact size of the system makes it safe and easy to manually run in and out of blastholes using a feeder reel fitted with 50 meters of 11 mm fiberglass rod. The BlastGyro™ can survey at all angles and the fiberglass rod assures it can be moved up, down and horizontally.

To be able to adapt to varying blasthole diameters the running gear can be fitted with KwikZip plastic centralizer blades. These plastic blades have different lengths and can be combined to cover a range of hole diameters. These plastic centralizers do not get sharp edges after repeated, further improving the safety of the system.

The system is operated using Surveyor™, Inertial Sensing's gyro field survey software. This has functions specially designed to make it easy to plan, conduct, process, reprocess and export blast ring surveys.

Downhole



Horizontal

Vertical Uphole

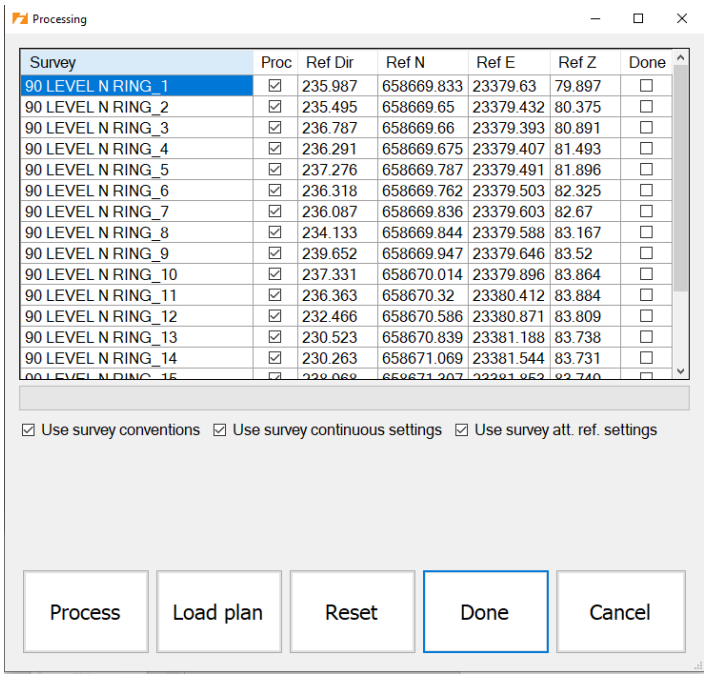
Surveyor™ The software that is used to operate the BlastGyro™ in the field is called Surveyor™. This is the same software used for all type of Inertial Sensing gyro survey tools.

To make it easy to survey a large series of holes in blasthole ring, Surveyor™ has a dedicated "BlastGyro Mode". One or more survey plans can be prepared with reference coordinates and directions at the office before going on location to survey. Once on location the operator can load the planned group of surveys with pre-set blast ring ID, hole IDs with associated start coordinates and reference angles. This mode of operation removes most of the data entry operations when starting each survey and makes repetitive surveying of a blast ring or vertical section very efficient and error-free.

		Start [X,Y,Z] coordinates			*End [X,Y,Z] coordinates*							
Survey name	**Hole ID**	**Ref easting**	**Ref northing**	**Ref elevation**	**Ref easting**	**Ref northing**	**Ref elevation**	**Start depth**	**Station interval**	**Ref type**	**Ref direction**	**In or Out**	**Tool inverted**
[string]	[string]	[number]	[number]	[number]	[number]	[number]	[number]	[number]	[number]	[CRS or VRS]	[number]	[In or Out]	[Yes or No]
AB12345678_W1_1	1	23379.63	658669.833	79.897				0	2	CRS	235.987	In	No
AB12345678_W1_2	2	23379.432	658669.65	80.375				0	2	CRS	235.495	In	No
AB12345678_W1_3	3	23379.393	658669.66	80.891				0	2	CRS	236.787	In	No
AB12345678_W1_4	4	23379.407	658669.675	81.493				0	2	CRS	236.291	In	No
AB12345678_W1_5	5	23379.491	658669.787	81.896				0	2	CRS	237.276	In	No
AB12345678_W1_6	6	23379.503	658669.762	82.325				0	2	CRS	236.318	In	No
AB12345678_W1_7	7	23379.603	658669.836	82.67				0	2	CRS	236.087	In	No
AB12345678_W1_8	8	23379.588	658669.844	83.167				0	2	CRS	234.133	In	No
AB12345678_W1_9	9	23379.646	658669.947	83.52				0	2	CRS	239.652	In	No
AB12345678_W1_10	10	23379.896	658670.014	83.864				0	2	CRS	237.331	In	No
AB12345678_W1_11	11	23380.412	658670.32	83.884				0	2	CRS	236.363	In	No
AB12345678_W1_12	12	23380.871	658670.586	83.809				0	2	CRS	232.466	In	No
AB12345678_W1_13	13	23381.188	658670.839	83.738				0	2	CRS	230.523	In	No
AB12345678_W1_14	14	23381.544	658671.069	83.731				0	2	CRS	230.263	In	No
AB12345678_W1_15	15	23381.853	658671.307	83.749				0	2	CRS	238.968	In	No
AB12345678_W1_16	16	23382.131	658671.508	83.758				0	2	CRS	35.905	In	No
AB12345678_W1_17	17	23382.297	658671.598	83.753				0	2	CRS	46.68	In	No
AB12345678_W1_18	18	23382.596	658671.805	83.815				0	2	CRS	54.632	In	No
AB12345678_W1_19	19	23382.804	658672.068	83.835				0	2	CRS	53.922	In	No
AB12345678_W1_20	20	23383.118	658672.322	83.829				0	2	CRS	56.475	In	No
AB12345678_W1_21	21	23383.59	658672.754	83.78				0	2	CRS	53.944	In	No
AB12345678_W1_22	22	23383.982	658672.992	83.655				0	2	CRS	54.974	In	No
AB12345678_W1_23	23	23384.297	658673.272	83.2				0	2	CRS	53.127	In	No
AB12345678_W1_24	24	23384.258	658673.203	82.326				0	2	CRS	53.026	In	No

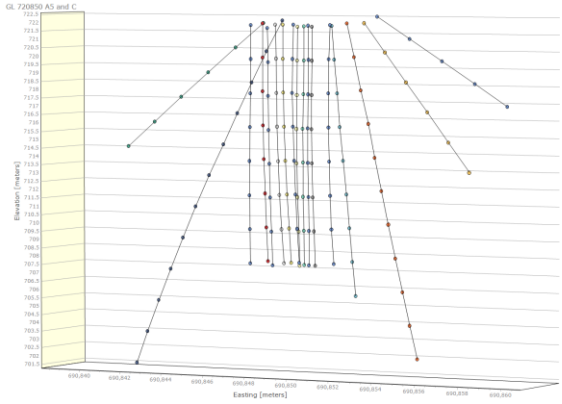
BlastGyro™ Survey plan example

Already processed survey data can be updated by opening the data in the Surveyor™ processing interface. The updated plan, with revised collar reference coordinates, is easy to load and a batch reprocess of all surveys can be accomplished with one button click. Surveys can be automatically exported into data formats such as: Excel, CSV, DXF, Leapfrog and Surpac.

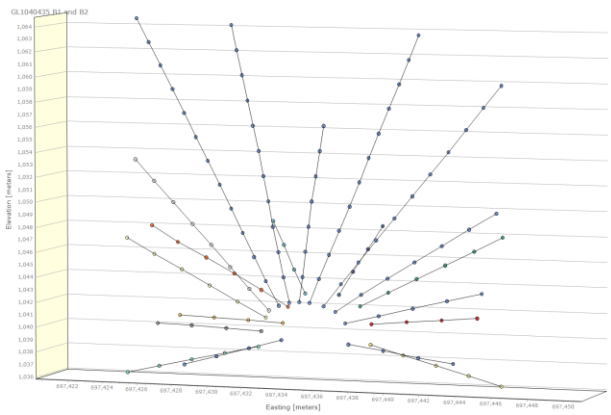


Process and reprocess data with one button click

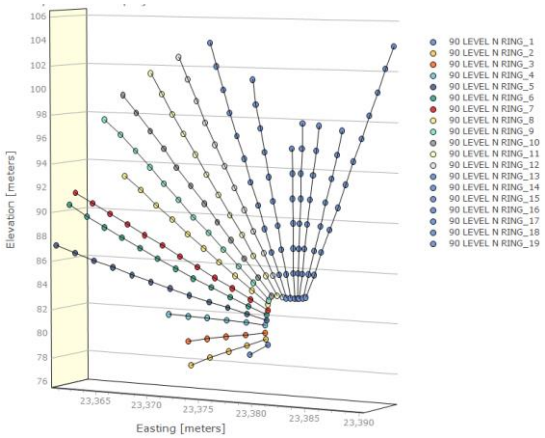
isAnalysis™ This is Inertial Sensing's software for analyzing, working with and exporting data. Although all BlastGyro™ results can be directly exported from Surveyor™ for further use in mine planning software, isAnalysis™ is a versatile tool for analyzing and viewing different sets of gyro data results.



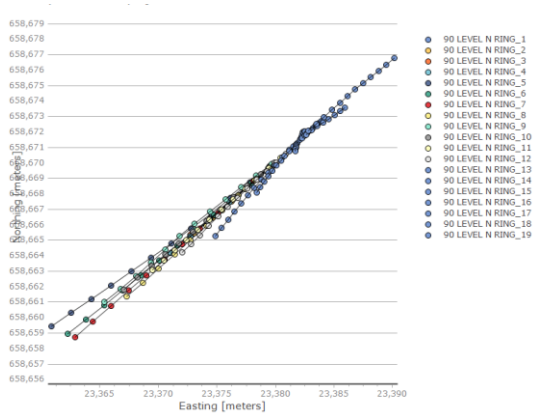
Vertical and Downhole



Horizontal and Uphole



Blast ring section 3D-view



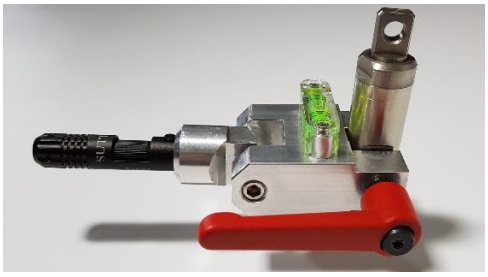
Blast ring section North/East view

Integrated SlimGyro™ This is the BlastGyro™ survey instrument and field computer. The gyro kit comes complete with survey instrument, two rechargeable batteries, a gyro battery charger, operator manual, Surveyor™ field software and isAnalysis™ data analysis software. There are no license fees associated with the software and updates are free of charge. The computer is a fully rugged Windows-based tablet supplied with a high-capacity battery, standard power outlet charger and car charger. The gyro and its batteries are fully integrated in a 25 mm and also comes with bottom shock absorber (bottom lander), swivel and v-stands.

Integrated 25 mm SlimGyro

GyroMax Feeder Reel™ The feeder reel is a manual system designed to make it possible to run the SlimGyro™ into and out of the hole. This works for all inclinations whether inclined, horizontal or vertical (up and down). The standard length of the reel rod is 50 meters, but it is possible to fit the reel with rod lengths of up to 100 meters. The reel is fitted with a pole mount for the field computer.

GyroMax Feeder Reel™



Underground laser sight

Underground laser sight This is an accessory that assists with sigthing the BlastGyro to a known mine grid reference point when conducting vertical up/down surveys. This red laser sight has full tilt adjustment with a built-in on-off button. It is powered by three SR44 silver-oxide button cells.

Centralizers The centralizer blades are made of plastic and two blades are mounted on each end of the pressure barrel. The blades are available in 4 arc sizes: 10 mm, 20 mm, 30 mm and 40 mm. To calculate the required size, simply double the arc size and add 26 mm (the running gear diameter). For example, the 10 mm arc size will be good for 45 mm ID holes and 40 mm arc will fit a hole of 105 mm as a rough guide. The blades are simply mounted using duct tape (silver tape) and can be set tighter or looser to make sure the fit to the hole diameter is correct. *It is important to review the necessary hole diameters before ordering.*

The blades wear down with use and are a consumable item but the operator will still get a lot of repeat use out of them. Depending on how they are used and ground conditions they can last anywhere from a day to several weeks. Most importantly the blades do not get sharp edges from repeated surveying

(as is the case for metallic blade centralizers) which is important from a safety perspective for a manually operated system.

Centralizer blades mounted on the Integrated SlimGyro.