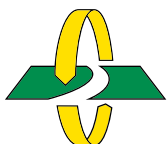


**GNSS Survey and RiGuide**

# Blast planning for mining

Solutions for surveying and drill rig control



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inventarisieren. kartieren. optimieren.



## HIGH-PRECISION DRILLING

The RiGuide system, by geo-konzept, is a drill rig upgrade and represents a viable and simple solution for quarry operators and drilling companies who place great value on precision and efficiency. With a modular design and adapted to respective requirements, the RiGuide system can be retrofitted on drill rigs from any manufacturer.

Precise implementation of blast planning using RiGuide guarantees optimal hole lengths, level floors and ideal blasting results.

## Performance

The **RiGuide** Compass system is another resolute step towards precision and efficiency. This ensures that a planned hole and/or blast direction (e.g. from **QuarryX**) is followed exactly. Bearing points are no longer necessary and consistent directional and trend precision is achieved, even in poor visibility (fog, night), which increases possible applications for the drill rig.

Using **QuarryX** software, every blast can be optimally planned based on 3D data. To implement this plan precisely with the drill rig, geo-konzept offers the **RiGuide 3D GNSS Positioning option**.

The 3D GNSS option targets the borehole starting points transferred from the PC via satellite positioning and the planned bore parameters (bore direction, bore angle and bore depth) are implemented precisely. The drill plan is transferred to the RiGuide terminal (panel PC) via a USB stick or the mobile web. **RiGuide** directs the drill rig operator directly to the exact hole collar points. This saves the operator from having to manually mark the borehole collar points and prevents measurement and communication errors with regard to planned borehole positions.

Preventing boreholes that are either too deep or too shallow, decreases vibrations as well as drilling and follow-up costs.

Automatic adjustment of the hole starting point

to the actual measured height enables precise adherence to the planned specification. The result is optimal, even fragmentation of the aggregate materials, level floors and a happy loading vehicle operator.

Upon conclusion of boring activities, the recorded data can be transferred back to the **QuarryX** blast planning system and integrated for documentation.



## Drill rig requirements

Generally, all drill rigs, e.g. Atlas Copco, Furukawa, Klemm, Hausherr and Sandvik can be retrofitted.

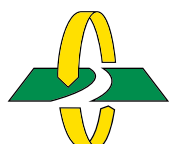
A **RiGuide** system, as well as all upgrade levels, can be installed on any machine.



# Blast planning for mining



With the GNSS surveying solutions by geo-konzept, a single person can stake out hole collar positions quickly and precisely. This not only saves time but also decreases vibrations and prevents boreholes that are either too deep or too shallow and their associated costs. The system helps you achieve better blasting results, improved safety and seamless documentation.



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# GNSS Surveying

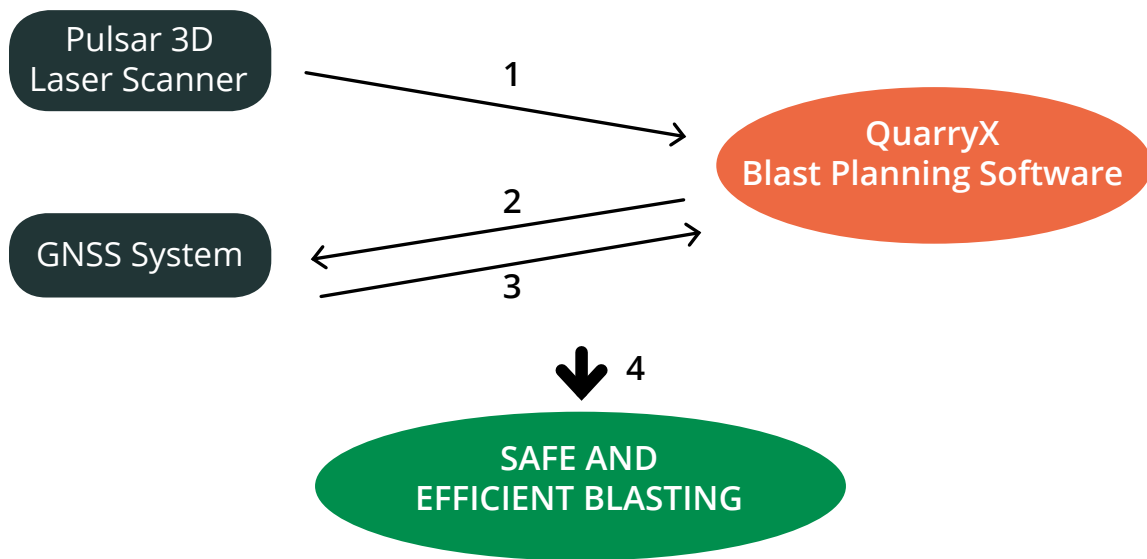
## Perfect workflow

Using this system, even complex blasting projects can be laid out by a single individual in no time at all.

First, a 3D model of the quarry face to be blasted is created. The **QuarryX** software plans the project precisely (1). The hole starting point coordinates are transferred to the GNSS system and subsequently staked out using the **QuarryPocket** GNSS software module (2). The borehole starting points recorded during the staking are subsequently

transferred back to the **QuarryX** software (3). The starting points, which have now been adjusted to reflect reality, can now be used to calculate the exact borehole depth (4).

Our GPS/GNSS surveying systems provide new documentation options as well as additional application options, such as continuous updating of mine plans or vibrograph positioning.



### RiGuide Add-on

Using the **QuarryX** software, every blast can be optimally planned based on 3D data. To implement this plan precisely with the drill rig, geo-konzept offers **RiGuide** GNSS drill rig control.

**RiGuide** is a drill rig upgrade and represents a viable and simple solution for all quarries and contractors.

**RiGuide** targets the borehole starting points transferred from the PC precisely via GNSS and implements the exact hole direction, angle and depth.

## Advantages

- Optimal, even fragmentation of aggregate materials
- Level floors
- Improved blasting results
- Modular design
- Fast and precise staking out of complex blasting projects
- Versatile implementation

geo-konzept  
Gesellschaft für Umweltplanungssysteme mbH  
Wittenfelder Straße 28 · 85111 Adelschlag  
Tel. +49 (0) 8424 89 89 0 · Fax +49 (0) 8424 89 89 80  
geo@geo-konzept.de · www.geo-konzept.de



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