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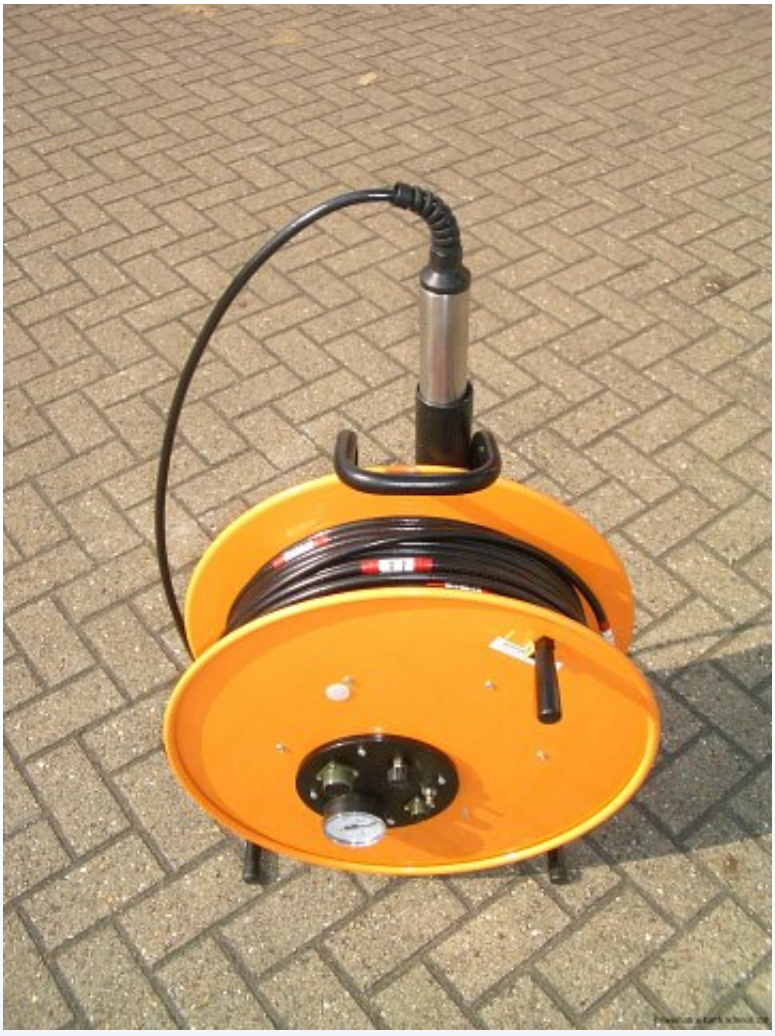
BGK Data Sheet

Borehole geophones permit the direct measurement of seismic wave velocities and can be located directly within the subsurface layer of interest for improved analysis of material properties. The technique is also capable of resolving layers of lower velocity and thin layers which are not resolvable with surface base geophysical methods.



BGK 7 and 100m cable reel.

The BGK series comprise of 3 products; the BGK7, BGK5 and BGK3. They consists of three main parts, the geophone unit, which is directly connected to the borehole cable, the pneumatic clamping unit and the magnetic compass unit for measuring the angle between magnetic north and axis of the H1-geophone axis (reference direction).

The BGK7 has 6 horizontal geophones at 30 degrees separation, the BGK5 4 Horizontal geophones at 45 degrees separation and the BGK3 2 Horizontal geophones at 90 degrees separation. All offer one geophone orientated vertically.

Unlike hydrophone arrays borehole geophones are able to record P & S-wave velocities through being clamped to the side of the borehole. The fluxgate compass reports the magnetic azimuth of the down hole tool permitting one of the horizontal components to be aligned parallel with the shear wave polarisation. Combining the two wave types in interpretation allows an almost comprehensive description of elastic rock properties.

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The preformance of the fluxgate compass is seriously comprised in steel case boreholes, to the point that the values cannot be trusted. To counter this Geotomographie produce the BGK7 with 6 horizontal geophones at 30 degree separations. With this system alignment of one of the geophones with the polarisation of the S-wave is much more likely any small misalignment can be correct using the 'Polarisation' method during processing. The polarisation method uses two orthogonal geophones to calculate the direction of particle motion and adjust the recording waveform accordingly.

Product Dimensions

Physical	Dimensions (L x W x H)	Weight
(instrument only)	55cm x 50cm x 50cm	28kg (for cable reel and geophone tool)

Technical Specifications

Number of Geophones:	BGK3 - 1 vertical & 2 horizontal (90º spacing) BGK5 - 1 vertical & 4 horizontal (45º spacing) BGK7 - 1 vertical & 6 horizontal (30º spacing)
Geophone Frequency:	4.5, 10, 15, 28 or 30Hz
Orientation:	Magnetic compass (+/-2.5°)
Clamping:	Air Bladder.
lead in cable:	up to 110m.
Housing:	Stainless Steel
Borehole diameter:	75 mm (or larger if spacers are used).
Geophone tool diameter:	51mm

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