HGS (INDIA) LIMITED

SPECIFICATION SHEET –HGK3/7 | Borehole Geophone

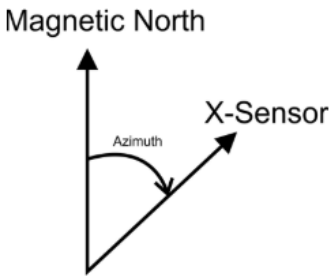
Description:

The borehole geophone HGK series is used to receive P- and S-waves in dry or water filled boreholes. The borehole geophone HGK3 consists of a tri-axial sensor whereas the HGK7 consists of six horizontal sensors, separated by 30° intervals, and one vertical sensor. The geophone is coupled to the borehole wall by a pneumatic clamping system (inflatable bladder). Air is supplied to the HGK through an electro-pneumatic hybrid cable with a Kevlar tension string. It consists of three main parts, the geophone unit, which is connected directly to the borehole cable, the pneumatic clamping unit, and the magnetic compass unit. The cable is terminated by a connector to the seismograph.

Borehole geophone HGK

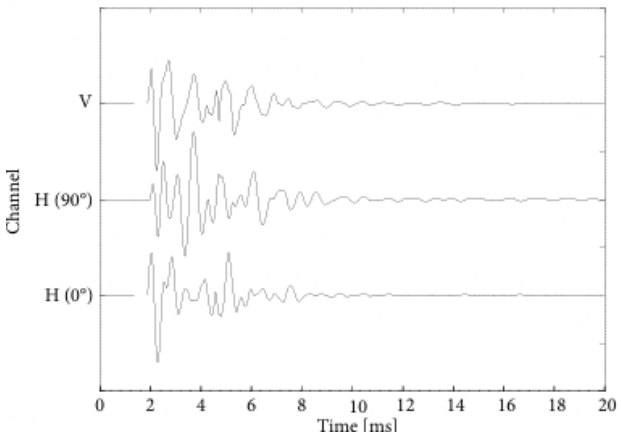
Orientation:

The magnetic compass is located at the lowest part of the geophone. It's a 3C magnetic sensor in a non-magnetic housing.
The angle between the magnetic North and the direction of the H1 (X) component can be correctly measured and is displayed on the surface unit. The resolution and accuracy of the compass readings is better +/-1°. A display at the drum shows the measured magnetic azimuth of the downhole sensor. A magnetic compass shows azimuthal deviation to North and can be used to get the orientation of the geophone in the borehole.

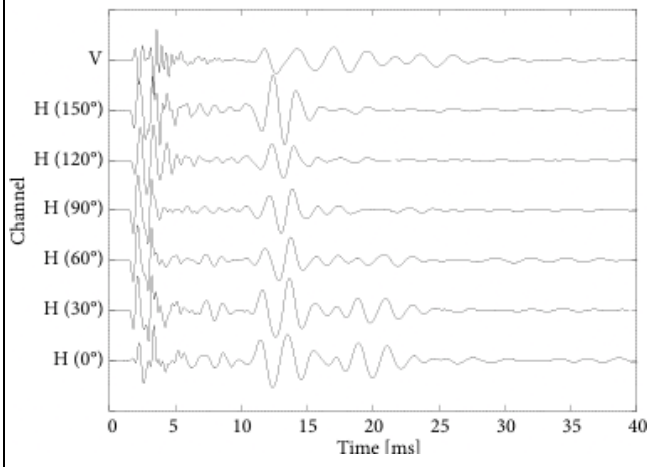


Schematic sketch showing angle measure

Data Example HGK3



Data Example HGK7



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Technical Specifications	
Natural sensor frequency	As per customer's requirement
Sensor arrangement	Tri-axial (HGK3) or 6 horizontal (30°)/1 vertical (HGK7)
Operational depth	Up to 150 m
Receiver length	654mm (HGK3), 776mm (HGK7)
Receiver diameter	52mm
Receiver weight	2.7kg (HGK3), 3.5kg (HGK7) (Approx)
Cable weight per meter	145 gm/meter
Cable strength	>200kgf
Borehole diameter	75mm (or larger if spacers are used)
Clamping system	Inflatable bladder
Depth indicator	Cable marking every 1m
Connector	To any seismograph
Orientation	Magnetic compass with azimuth angle measurement (0°–360°) and ±2.5° accuracy.
Battery for compass	Rechargeable Li-ion 11.1 V / 2500 mAh along with charger

Version 1.0

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