



## HGS (INDIA) LIMITED



### HG-6 Geophone Element



Based on the technology transfer for manufacturing the SM<sup>®</sup> range of geophones from Sensor<sup>®</sup> Nederland BV, HGS (India) Limited (erstwhile Geosource India Limited) offers the HG-6 geophone which is a long coil travel geophone based on the HG-4 design. The long coil travel offers advantages for higher tilt requirements and where large amplitude signals may be encountered. A range of natural frequencies from 4.5 Hz to 14 Hz are available. HG-6 can be supplied for vertical and horizontal orientation.

A variety of 1-C and 3-C waterproof land cases can accommodate the HG-6 geophone.

#### Features:

- Available in 4.5 Hz, 8 Hz, 10 Hz & 14 Hz natural frequencies
- Vertical and horizontal versions available
- Rugged design with rotating-coil contacts
- Widely used in structural and industrial vibration monitoring systems
- High Sensitivity versions used in earthquake monitoring systems

**Specifications - HG-6**

<b>Frequency</b>	<b>Value</b>	<b>Value</b>	<b>Value</b>
Natural frequency	8 Hz	10 Hz	14 Hz
Tolerance	±0.5Hz	±5%	±5%
Maximum tilt angle for specified Fn	20°	25°	25°
Typical spurious frequency	150 Hz	170 Hz	190 Hz
<b>Distortion</b>			
Distortion with 17.78 mm/s p.p. coil-to-case velocity	<0.2%	<0.2%	<0.2%
Distortion measurement frequency	12 Hz	12 Hz	14 Hz
Maximum tilt angle for distortion specification	15°	20°	20°
<b>Damping</b>			
Open circuit (typical)	0.315	0.25	0.18
Damping calibration-shunt resistance	2257 Ω	1339 Ω	645 Ω
Damping with calibration shunt	0.6	0.6	0.6
Shunt for damping	1500 Ω	1000 Ω	430 Ω
Damping for above mentioned shunt	0.710	0.689	0.710
Tolerance with calibration shunt	±5%	±5%	±5%
<b>Resistance</b>			
Standard coil resistance	375 Ω	375 Ω	375 Ω
Tolerance	±5%	±5%	±5%
<b>Sensitivity</b>			
Open - circuit Sensitivity	28.8V/m/s	28.8V/m/s	28.8V/m/s
Tolerance	±5%	±5%	±5%
$R_t B_c f_n$	6000 ΩHz	6000 ΩHz	6000 ΩHz
Moving mass	11.1 g	11.1 g	11.1 g
Maximum coil excursion p.p .	4 mm	4 mm	4 mm
<b>Physical Characteristics</b>			
Diameter	25.4 mm	25.4 mm	25.4 mm
Height	36 mm	36 mm	36 mm
Weight	81 g	81 g	81 g
Operating temperature range	-40°C to 100°C	-40°C to 100°C	-40°C to 100°C
<b>Warranty Period*</b>	2 years	2 years	2 years

\* Warranty excludes damage caused by high voltage and physical damage to the element case.

All parameters are specified at +20°C in the working position unless stated otherwise.

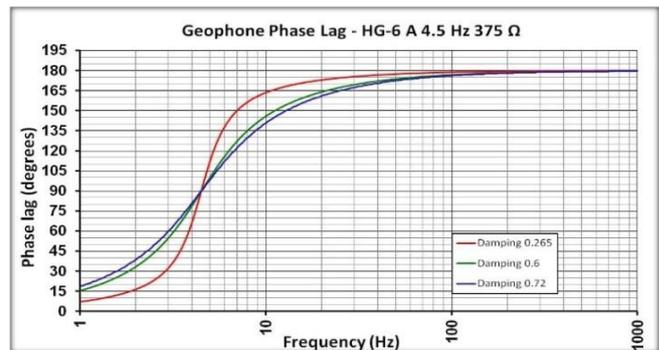
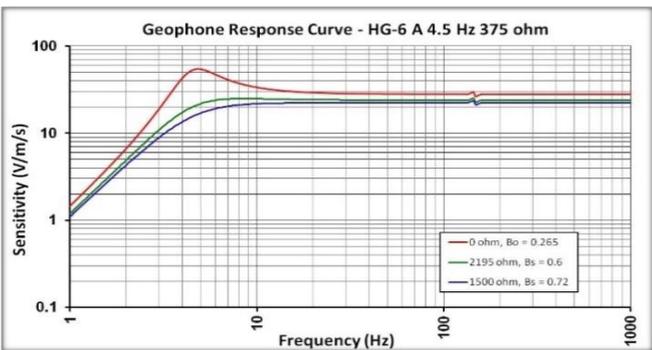
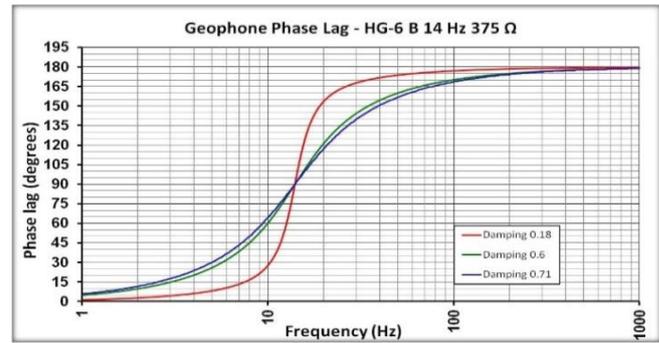
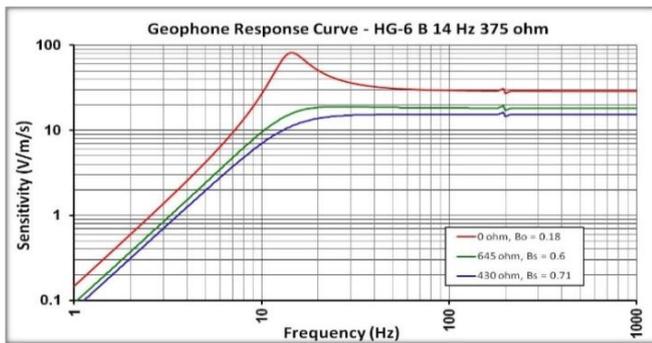
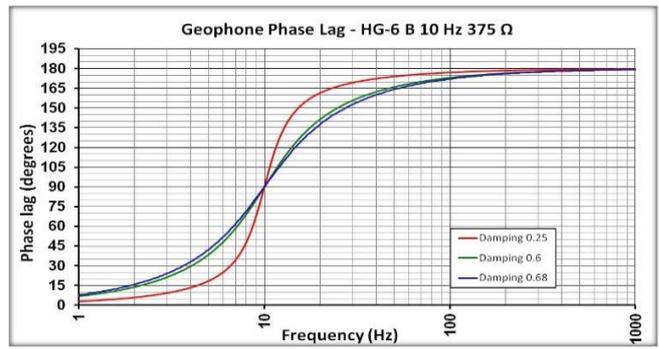
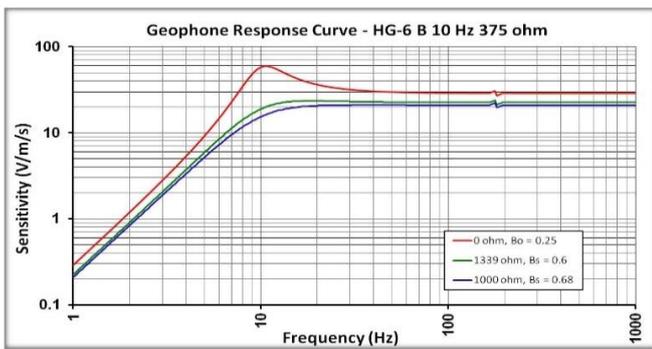
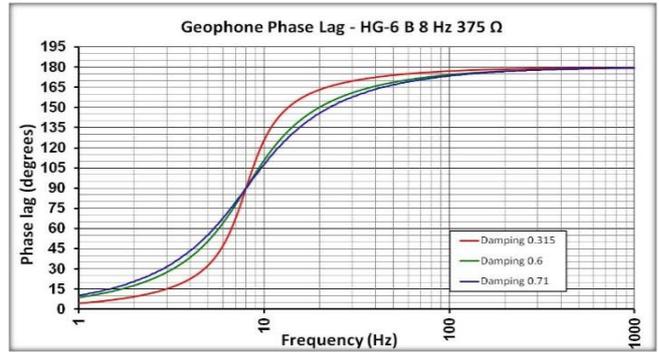
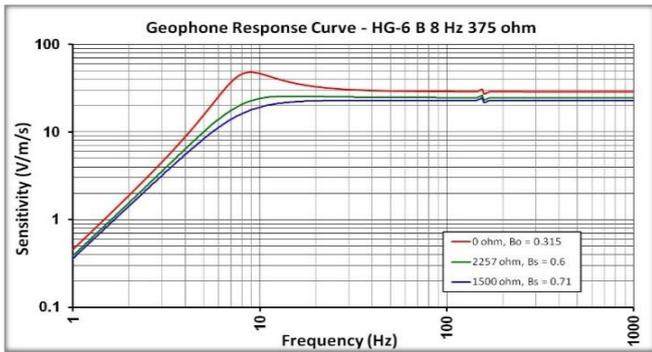
**Specifications - HG-6 Low Frequency Geophone**

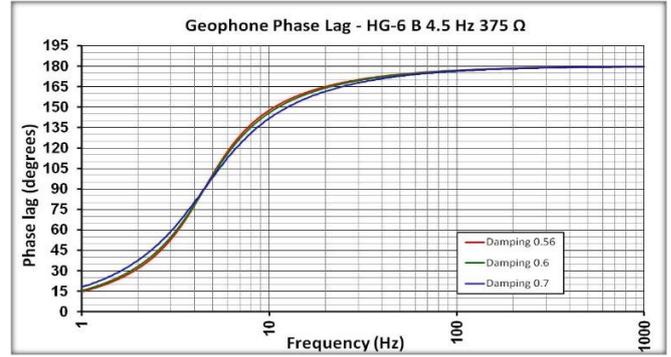
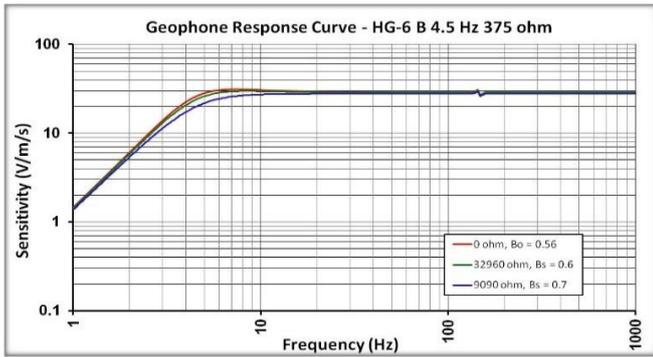
	<b>A - Coil</b>	<b>B - Coil</b>
<b>Frequency</b>	<b>Value</b>	<b>Value</b>
Natural frequency	4.5 Hz	4.5 Hz
Tolerance	±0.5 Hz	±0.5Hz
Maximum tilt angle for specified Fn	0°	0°
Typical spurious frequency	140 Hz	140 Hz
<b>Distortion</b>		
Distortion with 17.78 mm/s p.p. coil-to-case velocity	<0.3%	<0.3%
Distortion measurement frequency	12 Hz	12 Hz
Maximum tilt angle for distortion specification	0°	0°
<b>Damping</b>		
Open circuit (typical)	0.265	0.560
Tolerance (open circuit)	±5%	±5%
Shunt for 0.60 damping	2195 Ω	32960 Ω
Shunt for damping	1500 Ω	9090 Ω
Damping for above mentioned shunt	0.72	0.70
<b>Resistance</b>		
Standard coil resistance	375 Ω	375 Ω
Tolerance	±5%	±5%
<b>Sensitivity</b>		
Open - circuit Sensitivity	28.0 V/m/s	28.8 V/m/s
Tolerance	±5%	±5%
$R_t B_c f_n$	3875 ΩHz	6000 ΩHz
Moving mass	16.1 g	11.1 g
Maximum coil excursion p.p .	4 mm	4 mm
<b>Physical Characteristics</b>		
Diameter	25.4 mm	25.4 mm
Height	36 mm	36 mm
Weight	85 g	81 g
Operating temperature range	-40°C to 100°C	-40°C to 100°C
<b>Warranty Period*</b>	1 year	1 year

\* Warranty excludes damage caused by high voltage and physical damage to the element case.

All parameters are specified at +20°C in the working position unless stated otherwise.

## Geophone Response Curve and Phase Lag





### Ordering information

#### Description

#### Part No.

#### Working position

#### HG-6 4.5 Hz

HG-6 UA 4.5 Hz 375 Ω	SG000132	Upright
HG-6 HA 4.5 Hz 375 Ω	SG000083	Horizontal
HG-6 SA 4.5 Hz 375 Ω	SG000133	Vertical (pins down) (Specifications on request)
HG-6 UB 4.5 Hz 375 Ω	SG000088	Upright
HG-6 HB 4.5 Hz 375 Ω	SG000085	Horizontal
HG-6 SB 4.5 Hz 375 Ω	SG000093	Vertical (pins down) (Specifications on request)

#### HG-6 8 Hz

HG-6 UB 8 Hz 375 Ω	SG000136	Upright
HG-6 HB 8 Hz 375 Ω	SG000138	Horizontal
HG-6 SB 8 Hz 375 Ω	SG000137	Vertical (pins down) (Specifications on request)

#### HG-6 10 Hz

HG-6 UB 10 Hz 375 Ω	SG000084	Upright
HG-6 HB 10 Hz 375 Ω	SG000091	Horizontal
HG-6 SB 10 Hz 375 Ω	SG000139	Vertical (pins down) (Specifications on request)

#### HG-6 14 Hz

HG-6 UB 14 Hz 375 Ω	SG000078	Upright
HG-6 HB 14 Hz 375 Ω	SG000092	Horizontal

Version 1.1

#### India

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