



INCLINOMETER AND SONIC LOG CASINGS

**CASINGS FOR INCLINOMETER MEASUREMENTS
AND SONIC LOGGING**

INCLINOMETER CASINGS

Sireg produces both ABS and PVC inclinometer casings in different diameters and thicknesses which have the function to drive the slope indicator into the soil.

The inclinometer measurements allow to monitor the horizontal movements of soil, rocks and reinforced concrete structures. The main application fields are:

- Monitoring of the stability of slopes, landslides, buildings, dams
- Measurement of deformation of retaining structures such as berlinoises, diaphragm walls, piles
- Measurement of soil deformation near tunnels
- Verification of diaphragm walls verticality.

The inclinometer casings must be made tight seal to the soil or to the structure to be monitored, typically by cementation of the borehole in which they are inserted, in such a way that the casing can follow the movement of the surrounding environment.

At each step of measurement, the probe gives the sine of the angle in one or two directions.

The profile of the borehole is thus obtained and, through the comparison among the different readings in the time, you can see the possible movements.

For a better precision, a double measurement is carried out rotating the probe by 180°.



Inclinometer casing for dam movement monitoring

TYPES OF INCLINOMETER CASINGS

Sireg manufactures and markets inclinometer casings made of both PVC and ABS in order to meet different technical requirements. The use of plastics, not subject to corrosion, can ensure the long life of the casings even in the soil under water table and with saline water.

The diameter of the casing to be used depends on the monitored movement. The high quality standard is guaranteed by constant checks during the manufacturing process of the casing grooving and spiraling.

APPLICATION	RECOMMENDED PRODUCT
Landslides and deep gravitational movements with significant relative movements	3" ABS
Medium-sized landslides and monitoring of excavations and / or berlinoises	2" ABS - 3" ABS 60/70 PVC
Monitoring of small deformations also on a large scale. Surface installations	2" ABS 45/55 PVC
Deep monitoring with high pressures possibly acting on the casing	57/70 PVC

Nominal diameter [mm]	A Internal diameter [mm]	B External diameter [mm]	C Grooves diameters [mm]	Material	
2"	47	60	54	ABS	
3"	74	87	80	ABS	
60/70	60	70	64	ABS	
45/55	45	55	48	PVC	
57/70	57	70	63	PVC	
60/70	60	70	64	PVC	

FITTINGS

External diameter [mm]	Height [mm]
80	500
100	500
140	500
200	500

Together with the inclinometer casings Sireg has developed over the years, thanks to the collaboration with several international partners, an innovative and comprehensive range of accessories including: magnetic rings, anchors, telescopic connections and special couplings.

Sireg is also able to provide the materials necessary for the correct installation of the inclinometer casings, such as rivets, adhesives, tapes and injection hoses.

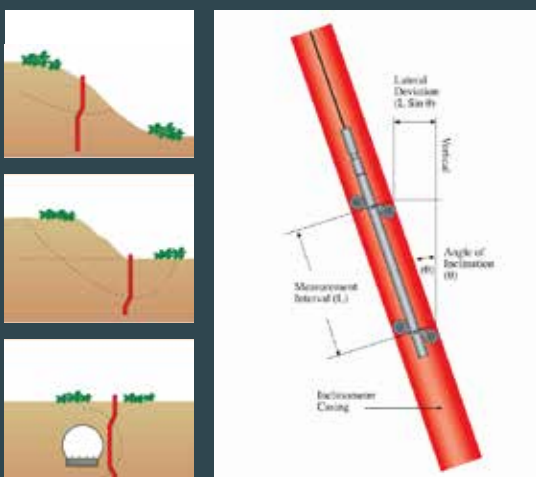
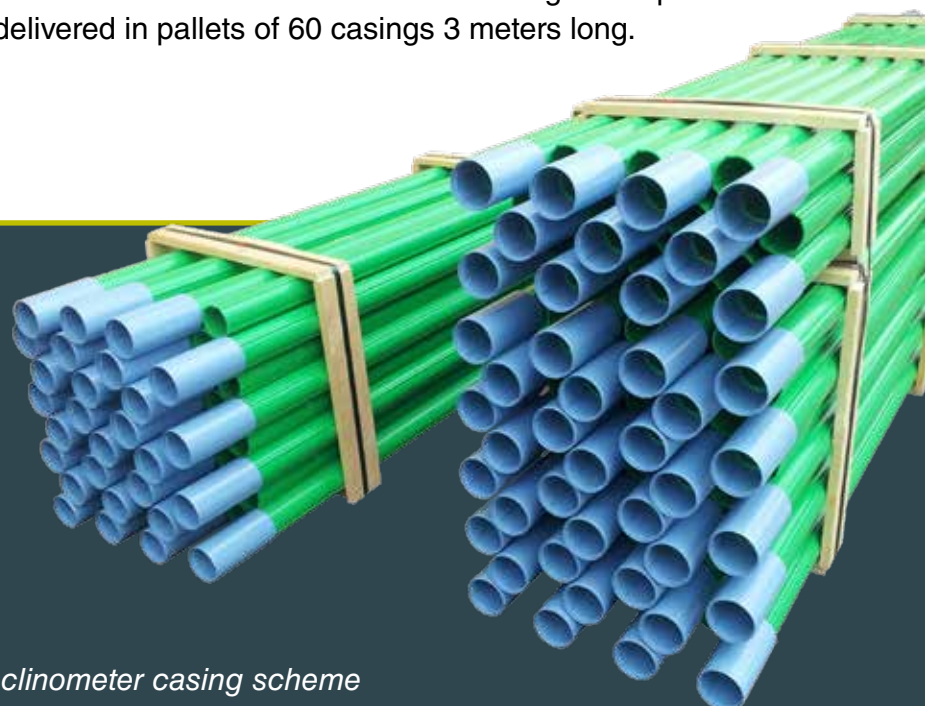


1. Magnetic rings
2. Brass rings
3. Safety sumps

In order to allow the different measurements, the upper end of the casings must be protected from external agents through, for example, a safety sump provided on request.

PACKAGING

The PVC and ABS inclinometer casings are packed and delivered in pallets of 60 casings 3 meters long.



Inclinometer casing scheme

Inclinometer casings packaging

DURVINIL® SONIC LOG CASINGS

PVC DURVINIL® sonic log casings are tied to the reinforcement of the structure by means of wire or plastic strips and, once dropped the reinforcement and cast the concrete, they can be used for the sonic logging of the structure.

These casings have been studied and developed to carry out sonic trials, to check the porosity, the void distribution and the quality of cementation of concrete structures, such as diaphragm walls, piles and foundation works.

Sonic logging is the continuous measurement of sound velocity between an emitting device and a receiving sensor (microphone), which are lowered down inside the casings.

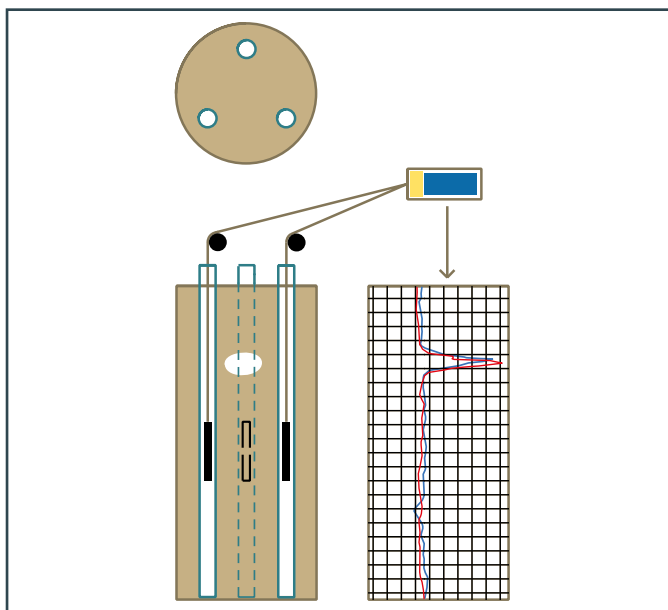
If the soil is homogeneous and cementation was carried out successfully, sound velocity is constant, whereas it decreases rapidly if there are defects such as soil inclusions, cracks or voids.

PVC DURVINIL® sonic log casings are manufactured in different diameters and lengths and suitably joined, they can reach the required depth. Compared to metal sonic casings, they are lighter, easier to install and cheaper.

Nominal diameter [mm]	Internal diameter [mm]	External diameter [mm]
1"½	40	48
1"½	40	50
2"	50	60
2"½	64	75



Reinforcement cage equipped with sonic log casings



Sonic trials scheme



Performing of sonic trials on site



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