

D111

# MAGNET EXTENSOMETER

SETTLEMENT  
GAUGES



## MAGNET EXTENSOMETER

Magnet extensometer is a system for measuring either settlement or heave at various depths in soil, embankments, earthfill dams and dikes. The system consists of an access tube with external corrugate pipe, magnet rings, bottom section with datum ring and suspension head.

Magnet rings (targets) are fixed externally to the access tube in the ground where movement may occur. Magnet rings move together with surrounding soil along the axis of the access tube.


Readings are obtained with a portable readout, lowering the reed switch probe through the access tube. Comparison of surveys taken over time provide profiles of ground.

### APPLICATIONS

- Earthfill dams
- Embankments
- Retaining structures, such as sheet piles and slurry walls
- Tunnels and shafts
- Excavations
- Foundations

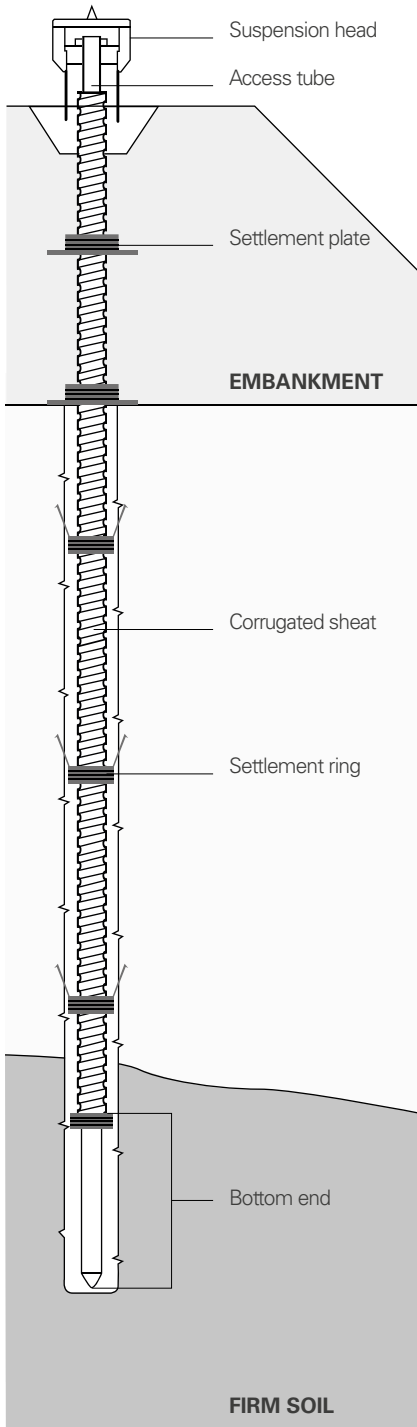
### FEATURES

- Simple and cheap system to measure vertical displacements
- Available special targets for inclino-settlement column
- Access tube and corrugate pipe can be extended during embankment construction
- Magnetic detector probe is available with various tape lengths

 *Meet the essential requirements of the EMC Directive 2014/30/UE*

## SETTLEMENT COLUMN

The D111 magnet settlement column determines vertical ground movement. Typically the settlement column is anchored in firm soil at its base to provide a datum. Magnet rings have either springs or plate anchor. Spring targets are suitable for borehole application and plate targets for embankments. A suspension head supports the magnetic detector probe during surveys. The bottom end of the column is fitted with a magnet target in order to have a bottom datum point.

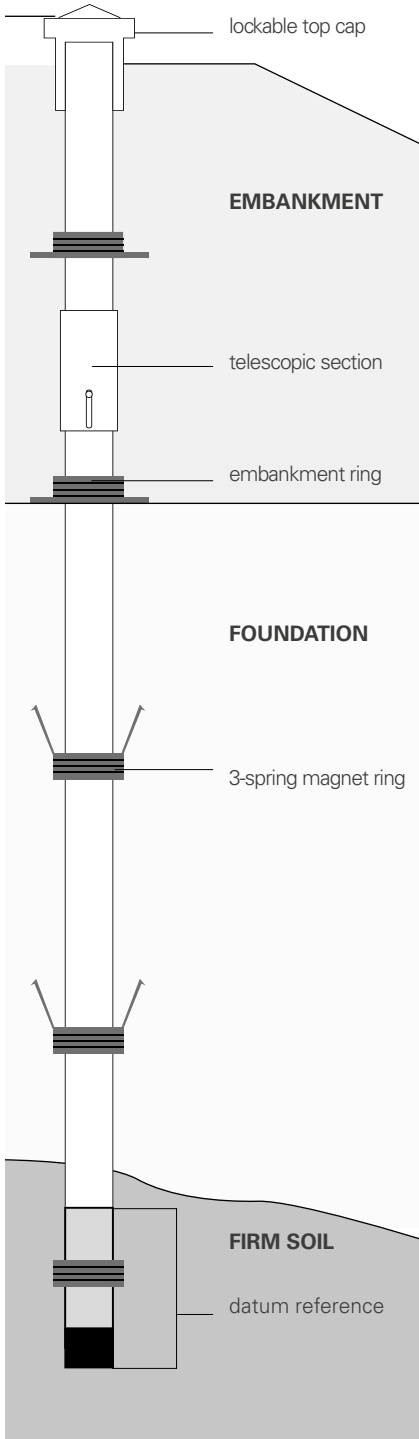


	<b>SUSPENSION HEAD OD111TS1000</b>	<b>BOTTOM END OD111TF6000</b>
Material	Stainless steel and PVC	Polyethylene
OD	140 mm	60 mm
Lenght	348 mm	1000 mm
Note	With topographic survey pin	With magnetic ring, OD 82.5 mm
	<b>ACCESS TUBE OD111P15000 - OD111P30000</b>	<b>CORRUGATED SHEATH OD111PV5500</b>
Material	PVC	PVC corrugated
OD	33 mm	55 mm
ID	25 mm	46 mm
Lenghts	1500 mm or 3000 mm	supplied on reel
	<b>3-SPRING SETTLEMENT RING OD111AF6000</b>	<b>SETTLEMENT PLATE OD111AR6000</b>
Application	Borehole	Embankment
Material	Plastic and nylon spring	Plastic
Sensitive element	Plastic-ferrite magnet	Plastic-ferrite magnet
Ring ID	60 mm	60 mm
Ring OD	85 m	85 mm
Anchor system	3 spider springs, max span 300 mm	plate diameter 300 mm
	<b>6-SPRING SETTLEMENT RING OD111AF6060</b>	<b>SIMPLE MAGNET RING OD111AR6000</b>
Application	Borehole	Borehole
Material	Plastic and nylon spring	Plastic
Sensitive element	Plastic-ferrite magnet	Plastic-ferrite magnet
Ring ID	60 mm	60 mm
Ring OD	85 m	85 mm
Anchor system	6 spider springs, max span 300 mm	corrugated ring body



# INCLINO-SETTLEMENT COLUMN

Inclino-settlement column is a cost-effective solution when inclinometer and settlement measurement are requested. They are composed by ABS inclinometer casing with a number of magnet rings; telescopic sections are provided for columns where big settlements are expected with consequent damage of the casings. Spider magnet rings are usually installed in borehole; embankment magnet rings with circular plate are available for installation during embankment construction. A typical application of inclino-settlement column is in embankment or earth-fill dam to control settlement in foundation and embankment body during construction.



	<b>INCLINOMETER TUBE OS1411070</b>	<b>COUPLING OS141MF700</b>
Material	ABS plastic	ABS plastic
OD	70 mm	70,7 mm
ID	59 mm	66 mm
Length	3000 mm	200 mm
	<b>TELESCOPIC SECTION, 3M OS141ST0000</b>	<b>TELESCOPIC SECTION, 1.5 M OS141ST0015</b>
Material	ABS	ABS
Gap	75 / 150 mm	75 / 150 mm
Outer diameter	80 mm	80 mm
Length	3000 mm	1500 mm
	<b>3-SPRING MAGNET RING OS131AF6000</b>	<b>EMBANKMENT RING OS131AR6000</b>
Application	Borehole	Embankment
Material	Plastic and nylon spring	Plastic
Sensitive element	Plastic-ferrite magnet	Plastic-ferrite magnet
Ring ID	71 mm	71 mm
Ring OD	93 mm	93 mm
Anchor system	max spider spring span 300 mm	plate diameter 300 mm
	<b>DATUM REFERENCE OS141DR7000</b>	<b>6-SPRING MAGNET RING OS131AF6060</b>
Application	Datum bottom reference	Borehole
Material	Plastic	Plastic
Sensitive element	Plastic-ferrite magnet	Plastic-ferrite magnet
Ring ID	71 mm	71 mm
Ring OD	93 mm	93 mm
Dimensions	length 1500 mm	max spider spring span 300 mm

## MAGNETIC DETECTOR PROBE

The C121 magnetic detector probe is the measuring device for multipoint magnet extensometers. The unit consists of a magnetic probe containing a switch actuated by the magnetic field of the target rings. The switch activates buzzer and lamp. The magnetic probe is attached to a stretch resistant flat cable coiled on a portable reel. Cable is marked in unit lengths with division in millimetre. A special device (0C1REFH0800) ensures cable guide and datum during measurements.



### FLAT CABLE

Available lengths	50, 100, 150, 200 m
Measuring scale divisions	millimeter
Width	12 mm
Number of conductors	two
Sheath	nylon
Temperature range	-40°C +100°C
System accuracy	±1 mm
Weight	25 g/m

### MEASURING PROBE

Dimension	OD 16 mm, Length 250 mm
Material	Stainless steel and PVC
Weights	Zn Al alloy, OD 12 mm

### REEL

Diameter	260÷320 mm according to tape length
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## ACCESSORIES AND SPARE PARTS

### GRADUATED FLAT CABLE 0WE302M0000

Flat cable graduated in millimeter with 2 electrical conductors  
Standard lengths: 50, 100, 150, 200 m.  
Different lengths available on request

### DETECTOR SWITCH PROBE 0C121KITR00

Spare detector switch probe and set of weights.

### CABLE GUIDE AND DATUM 0C1REFH0800

Spare cable guide and datum (spare).  
It ensures easy and consistent measurements.

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### TECHNICAL ASSISTANCE

SISGEO offers customers e-mail and phone assistance to ensure proper use of instruments and readout and to maximize performance of the system.

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