C17-NXG VERTICAL INCLINOMETER SYSTEM

Datasheet C17-NXG

Advanced NXG Features

- Light weight Vectran® cable, 6.0kN
- Sim enabled large 8" display robust field tablet
- Borehole recognition system
- Light weight, non slip cable markers
- Auto run feature for rapid borehole runs
- Includes In-Profile borehole analysis software[2]
- Review datasets graphically upon completion of borehole run
- Small diameter probe for traversing tighter bend radius in inclinometer casing
- Over 40 hours reel battery life
- Aerospace grade wheel bearings

Description

The NXG Vertical Inclinometer System is used to measure lateral deflections within a borehole. The system comprises a biaxial probe, cable reel and ultra-rugged field tablet supplied with 'In-Port Pro' data capture software.

The probe incorporates MEMS technology allowing highly accurate and repeatable readings, transferred via a digital signal. Bluetooth communication enables a cable free data transmitting to the field tablet.

The robust reinforced Vectran® cable consists of a non slip cable marker system which, when used in conjunction with the cable gate, provides highly accurate and repeatable depth control.

With all these combined features, the NXG Vertical Inclinometer System is a robust and highly accurate system that is light, compact and easy to operate in any site environment.

Features

- Stainless Steel Probe with revolutionary new connector design
- Vectran® re-enforced EMC-shielded orange cable
- Accurate and precise measurements using MEMS sensors
- Precision sprung wheel assemblies with dual long-life bearings
- Lightweight cable markers and tethered cable gate
- Bluetooth connection between cable reel and field tablet
- Large 8" high visibility touchscreen display with "gorilla" glass
- Ultra-rugged waterproof field tablet

Benefits

- Easier to use in the field with zero risk of pin failure
- Robust, lighter and more visible on-site
- Advanced electronics ensure long-term trouble-free use
- More resilient to harsh environments
- Repeatable depth control and enhanced on-site safety
- Digital signal allows interference-free data transmission
- Clear view of results and data graphs in hostile conditions
- Simple data transfer via Bluetooth, direct connection or internet using Wi-Fi or cellular network with extra-long battery life

Comprehensive information about this product and our full range is available at soilinstruments.com
If you would like to speak with someone directly please call +44 (0)1825 765044 or email sales@soilinstruments.com

PRECISELY MEASURED

instrumentation and monitoring

MICROELECTROMECHANICAL SYSTEMS (MEMS)

MEMS

Microelectromechanical Systems, or MEMS, is a technology that uses miniaturised mechanical and electromechanical elements that are made using the techniques of microfabrication. The physical dimensions of MEMS devices can vary from well below one micron all the way to several millimetres.

Our MEMS microsensor is a small discrete device that converts a measured mechanical signal, gravity (g) into a voltage signal.

Operation

The inclinometer probe is inserted into the inclinometer casing and lowered to depth, ensuring the probe wheels are correctly aligned and slotted within the keyways of the casing. The probe is connected by a graduated cable to the cable reel.

Displacement readings are taken at regular intervals of 0.5m within the casing (the gauge length between the probe wheels). This is measured and controlled by markers crimped around the cable, these pass through a notch in the cable gate, giving an exact position for each reading.

By pressing the screen button or using auto run mode you can save readings from the MEMS sensors, which are transmitted to the Field Tablet from the cable reel via Bluetooth transmission.

An initial or 'base' set of inclinometer readings are obtained at each increment within the casing.

The summation of each incremental reading provides a profile of horizontal displacement of the casing as a function of depth.

When you take all subsequent readings at identical depths the comparison of successive casing profiles indicates the depth, direction, magnitude and the rate of change of movement.

You can see the clearest indication of movement by plotting the change in displacement of the casing against depth using 'In-Profile' Inclinometer Data Management Package.

Applications

Inclinometer systems are used to measure lateral displacement in the ground or structure. They are useful for determining the depth, direction, magnitude and rate of movement.

Typical applications include:

- **Slope failures and landslides**
- **Shear and slip zones**
- **Diaphragm or sheet pile walls**
- **Monitoring bending in piles**
- **Verifying design assumptions and finite element analysis**
- **Embankments**
- **Dams**
- **Retaining walls**

Associated products

For details on:	Catalogue code:
EC Casing	C9
Standard Casing	C18
'In-Profile' Software	C13
Inclinometer Test Probe	C10

View our full product range on www.soilinstruments.com

THE TECHNICAL RATING FOR THIS PRODUCT:

BASIC

As the correct installation of any monitoring sensor or system is vital to maximise performance and accuracy, Soil Instruments makes the following recommendations, for the skill level of the installation contractor.

ADDITIONAL SUPPORT

We offer installation and monitoring services to support this system. For more information please email : **sales@soilinstruments.com** or call : **+44 (0) 1825 765044**

ADVANCED	The installer is trained and experienced in the installation of this type of instrument or systems, and is ideally a specialist Instrumentation and Monitoring contractor.
INTERMEDIATE	The installer already has previous experience and/or training in the installation of this instrument or system.
BASIC	As a minimum the installer has read and fully comprehends the manual, and if possible has observed these instruments or systems being installed by others.

Specifications

Probe

Probe gauge length	500mm
Probe diameter	25.4mm
Calibrated ranges	±30° (±250mm)
Resolution	0.005mm
Sensor accuracy	±0.02% full scale (±0.1mm)
Operating temperature	-20 to +70°C
Repeatability	±0.005% full scale
System accuracy[1] (over 30m)	±2.0mm
Minimum casing internal diameter	38mm
Maximum casing internal diameter	83mm
Minimum traversable bend radius[3]	2.3m
Weight	1.8kg

Cable

Type	Vectran® re-enforced Polyurethane coated 4 core cable
Weight	56g per metre (approx)
Cable marker	Aluminium
Breaking strength	6.0kN
Cable diameter	6.3mm

Cable Reel

Dimensions	30-100m	150-200m
	367 x 310 x230 mm	555 x 445 x 310 mm
Battery life	40 hours continuous use	

Weight (reel, cable and probe)

30 metre	5.8kg
50 metre	6.9kg
100 metre	9.7Kg
150 metre	19kg
200 metre	22Kg

Field Tablet

Display	8", high visibility display
Connectivity	Bluetooth© 4.1, Wi-Fi© 802.11 b/g/n/ac, 4G LTE
Dimensions	244 x 158 x 23mm
Weight	750 g
Camera	13MP (Rear facing) / 5 MP (Front facing)
Operating Temperature	-10 to +50°C
Battery Life	Up to 12 hours
Ingress Protection	IP68
GPS	A-GPS and GPS
Ports	OTG USB, Dual slim slot

[1]Derived empirically from surveys that include systematic and random errors introduced by casing, probe and operator.
Achieved using Soil Instruments Easy Connect (EC) Casing installed within 3° of vertical and operated in accordance with the user manual.
[2]'In-Profile' Basic included. Advanced version available as option.
[3]Based on Soil Instruments 70mm EC Casing.

Ordering information

NXG Vertical Inclinometer System

Includes cable, cable reel, charger, cable gate and carry bag.

C17-NXG-R30M	30metre cable length
C17-NXG-R50M	50metre cable length
C17-NXG-R75M	75metre cable length
C17-NXG-R100M	100metre cable length
C17-NXG-R150M	150metre cable length
C17-NXG-R200M	200metre cable length

NXG Vertical Inclinometer System Probe

Includes biaxial probe, carry case and calibration certificate.
For use with up to 85mm outer diameter casing.

C17-NXG-PM	0.5metre Probe length, ±250mm/500mm (±30 arc degree)

Field Tablet

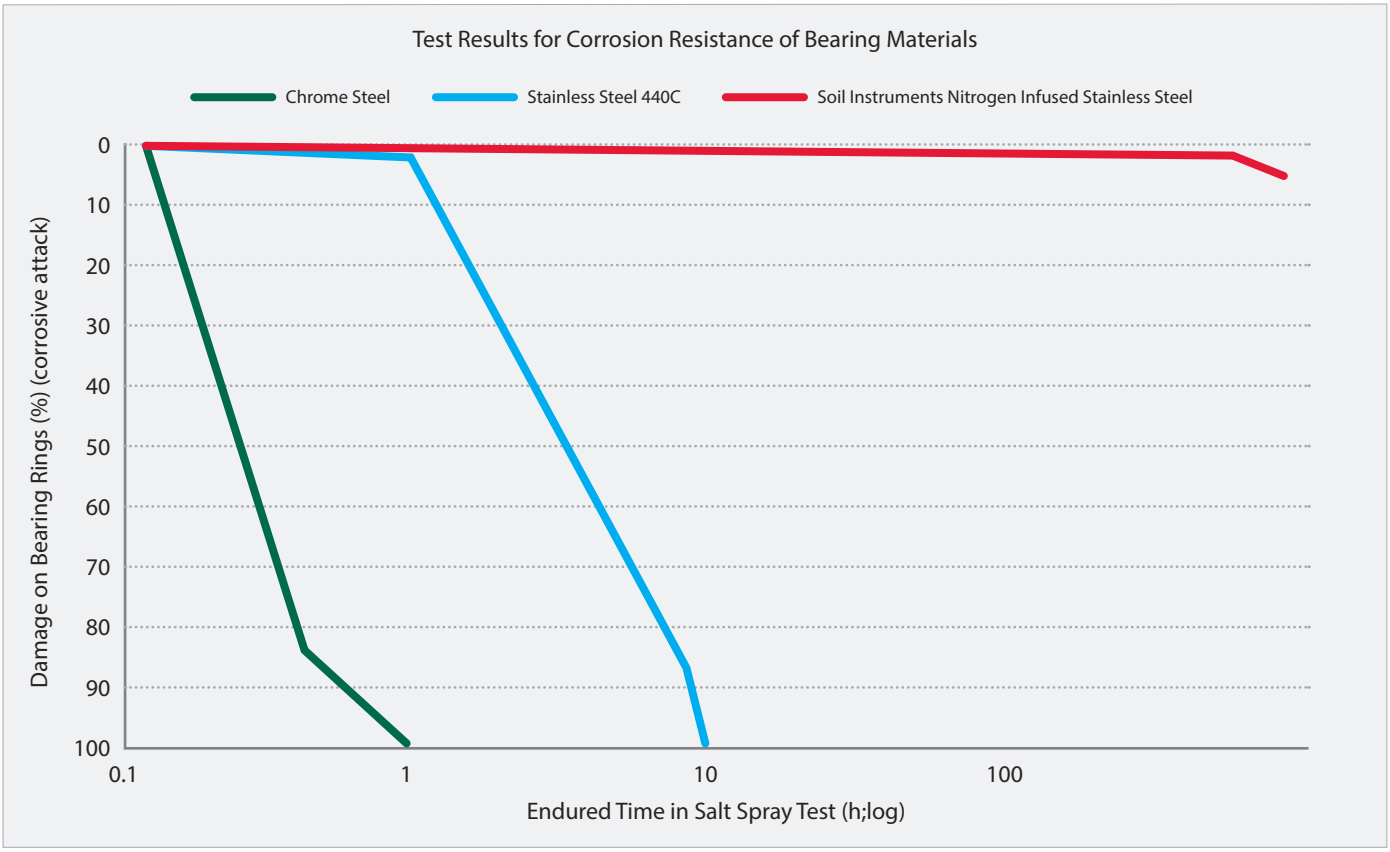
C17-PRO-RT8	Field Tablet Loaded with In-Port Pro Software

In-Profile Data Management Package

C13-PRO	In-Profile licence key

Inclinometer Accessories

C17-NXG-TP	Test probe with clip
C17-NXG-TP50	Test probe with 50metre steel cable & cable reel
C17-NXG-TP100	Test probe with 100metre steel cable & cable reel
C17-NXG-TP200	Test probe with 200metre steel cable & cable reel
C10-3.8	Probe reference frame



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