

Crack meter (3D) – TJXY03

A 3D crack meter (or joint meter) is used to monitor any changes in three displacement components of a surface crack. Whenever it is important to distinguish between all three components of crack displacement, this 3D device is used. This device is an assembly of two elbow shape metallic parts where each part is fixed at one side of a crack. When the device is fixed in place, the arms of the elbows are normal to one another in three orthogonal axes. A fixing element is used to combine the whole assembly in an orthogonal arrangement during installation process. A dial gauge is used to read the three displacement components manually. If remote reading is required, three potentiometers can be mounted on the instrument producing output which can be read by a suitable readout unit. The device is purely mechanical and no electrical element is used in the system. This makes it very rugged and durable. The assembly can be uninstalled after the job is finished and be reused in another location.

Application

Some of the applications of this instrument are :

- Monitoring crack opening (or closure) in rock structures.
- Recording movements along cracks formed in concrete structures.
- Movement assessment of buildings adjacent to open excavations.
- Monitoring tension cracks in open slopes.

Operation and Installation

To install a 3D crack meter, the whole assembly (which is originally fixed together with a fixing element) is selected. While the assembly is still attached together, the fixation to the ground/concrete is done. This is usually performed by drilling small holes and using bolts and nuts. Once the installation is done, the fixing element is opened and a dial gauge is used to do the manual reading. The gauge sits on one arm and the needle rests on the opposite arm on the next elbow. The initial reading is done and this is repeated over time to record the crack displacement on that direction. Two other arms can be read in the same manner.

Whenever a remote or programmed reading is required, three linear potentiometers can be fixed to the arms in three directions. The same assembly which was used for manual reading can be utilized for electrical reading.



Technical Spec

Displacement range	50 and 100 mm
Accuracy	0.5% FS
Sensor type	Dial gauge / Potentiometer
Material type	Aluminum / Steel

Order information

TJ-X-Y-03-AAA

X: Aluminum (C) or Steel (S)

Y: Dial gauge (G) or Potentiometer (E)

AAA: Displacement range in mm