

RST's direct and inverted pendulums are simple, and very reliable and accurate systems used to monitor internal lateral deformations of concrete dams, the dam foundations and abutments, tall industrial buildings and bridge piers.

The direct pendulum (plumbline) consists of a stainless steel wire attached to a fix point at a top of structure to be monitored, a weight, and a tank containing damping fluid to damp movements of the weight due to wind and air circulation.

Displacements relative to the wire can be measured by RST'S optical reading stations and telependulum, which allows remote continuous monitoring of deformations (please see the RST RxTx Telependulum System brochure for more information).

The inverted pendulum uses the same readout units, and includes a stainless steel wire anchored in the structure foundation with a float fixed at its upper end. The float, which is free to move in a tank, tensions the wire and keeps it vertical. Once anchored in stable point in foundation it measures absolute deformation of the structure and it's used as a reference for surface geodetic surveying.

RST's pendulums are easy to use and very accurate instruments in long- term use, and are an excellent choice for monitoring of concrete dams. The plumbines are usually installed in shafts or pipes extending vertically from crest of the dam to a bottom monitoring gallery located near the dam foundation. Wherever feasible horizontal movements of the dam, in both the upstream-downstream direction and left-right bank direction, are measured at several elevations to obtain the deflected position of the dam section over the full height of the structure.

The length of the plumbline is limited up to 60 m. Longer configurations are not recommended due to excessive vibration of the wire generated by air circulation and wind in the pendulum shaft. To monitor deflection of a complete profile of a very high concrete dam (>> 60 m) several plumbines can be installed in vertical alignment one above the other starting with an inverted pendulum anchored in borehole in the dam foundation.

FEATURES

Simple, reliable and accurate systems for long term use.

Available as both direct and inverted pendulum systems.

Inverted pendulum measures absolute deformation of structure and can be used to monitor movement of a structure during its construction.

Inverted pendulum can be successfully used as reference for geodetic surveying.

Telependulum for remote monitoring and datalogging.

APPLICATIONS

To monitor internal lateral deformations of concrete dams, the dam foundations and abutments.

To monitor movement of toll industrial buildings and bridge piers.

ORDERING INFORMATION

ITEM	PART #
Direct pendulum c/w a wire tensioning weight and damper tank	IC9001
Inverted pendulum c/w a float unit and anchoring weight	IC9010
Stainless steel wire for pendulums	IC9020
Portable coordinometer, measuring range: x=30 mm y=30 mm Resolution: 0.02 mm	IC9030
RxTx telependulum, measuring range: x=50 mm y=50mm z=25mm (detail specifications given in telependulum brochure)	IC9040



Specifications may change without notice. ICB0024E



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The RST Instruments Management System is certified to ISO 9001:2000

