DATA DIGGER EQUIPMENT

DATA SHEET

VIBRATING WIRE LOAD

DDE-3000

Introduction

DATA DIGGER Equipment vibrating wire load cell is a type of sensor used to measure force or load in various industrial applications. It operates based on the principle of a vibrating wire, where a tensioned wire vibrates at a frequency that changes with the applied load. The load cell consists of a wire, magnet, and a coil, with the wire tension varying in response to the force. The frequency shift is directly proportional to the load, making it highly accurate. These load cells are known for their durability and resistance to environmental factors like temperature changes and moisture. They are commonly used in civil engineering, structural monitoring, and heavy machinery. The vibrating wire load cell offers long-term stability and minimal drift over time. Its compact design allows it to be integrated into various applications, ensuring precise and reliable measurements.

Features

- Vibrating wire load cells provide precise load measurements with minimal drift, ensuring reliable data even in dynamic or harsh environments.
- They are resistant to temperature fluctuations, moisture, and other environmental factors, offering long-term performance and minimal maintenance.
- These load cells are designed for easy integration into various structures and machinery, capable of withstanding high loads and rugged conditions.
- Vibrating wire load cells can be easily connected to data loggers for real-time data recording and monitoring, enabling remote or automated load measurements.

Application

- Concrete Dams
- Cut Rock Slopes
- Deep Excavation
- Retaining Walls
- Bridges
- Cavern Linings & Tunnels

Overview

Vibrating Wire Load Cell consists of cylinder of high-strength steel with 3, or 6 vibrating wire strain gauges located around the circumference of the load cell. Load applied to the cell are measured by vibrating wire strain gauge. The effect of uneven and eccentric loading is minimized by averaging the output of all 3, or 6 individual readings.

- Versatile wire load cell have high stability and sensitivity.
- Readings can be logged by Data Accusation System.
- Rugged Waterproof Construction and Design. Accurately measure E centric pressure.
- Versatile design for use with tie backs, rock bolts, struts or arch support

Description

The Vibrating Wire Load Cell consists of a high-strength, heat treated steel cylinder which consists of a set of vibrating wire gauges mounted parallel to each other equally spaced in a ring in an alloy steel cylindrical housing with three to six vibrating wire strain gauges located to its circumference. Load applied to the load cells are measured by vibrating wire strain gauges and the readings are averaged to minimize the effects of uneven and eccentric loading. All model load cells are fitted with inbuilt thermistor to enable load reads to be corrected for temperature variation. The average sensitivity of these cells is 0.5% F.S

The Vibrating Wire Load Cell has proven long term stability, and the housing and cable are permanently sealed for field conditions. The Load Cell is supplied with the standard connector mounted on the cable end with an protection end is fitted to the end of the cable to protect against dirt, moisture and damage. The Load Cell Multiplexer unit enables rapid connections of all gauges to the readout unit. Alternatively, a Multiplexer unit can be used to automatically sum the output of the strain gauges. The total load can then be displayed by the readout unit in engineering units. Each Load Cell is supplied with calibration certificate.

Tecehnical Specifications

VIBRATING WIRE LOAD CELL	
WORKING LOAD (KN)	250/500/1000/1500/2000
OVERALL DIA(mm)	70/90/110/130/160
CENTRE HOLE (mm)	32/50/70/90/120
HEIGHT(mm)	32/50/70/90/120
Operating Temperature	-10°C to +50°C
RATED CAPACITIES	100 TO 10,000KN
OVER RANGE	150% F.S.
RESOLUTION	0.25% F.S.
ACCURACY	±0.5% F.S.
TEMPERATURE RANGE	-20˚C to +60˚C