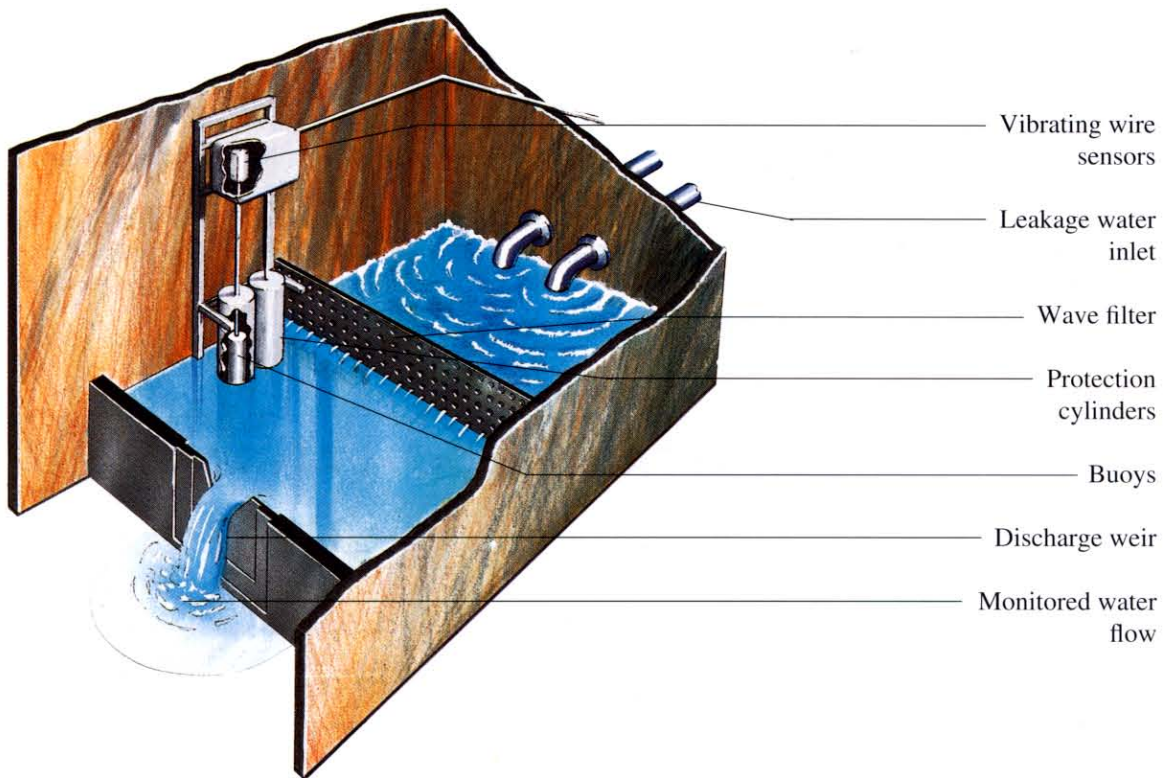


GEONOR S-356 Continuous Leakage Monitoring System

The best indicator of the overall performance of earth- and rockfill dams



FEATURES:

- Evaluation of the long term stability of dam constructions
- Documented accuracy and long term reliability
- Complete monitoring back-up
- Vibrating wire technology
- No moving parts
- Appropriate for remote monitoring
- System designed by the Norwegian Geotechnical Institute

GEONOR S-356 CONTINUOUS LEAKAGE MONITORING SYSTEM

LEAKAGE MONITORING

Leakage monitoring is the best indicator of the overall performance of earth- and rockfill dams. Leakage is an integrated quantity and thus reflects the performance of the entire dam and not just the conditions at discrete instrumented points. Consequently, leakage monitoring also provides data for the evaluation of the long term stability of dam constructions.

PRINCIPLES

Leakage water is impounded downstream of the dam and diverted to a basin in a weir-station. The leakage rate is a function of the water level in the basin which is in turn given by the shape of the discharge weir at the end of the basin. With the Geonor S-356 Leakage Monitoring System, water level variations are very accurately sensed

by strain sensors (using vibrating wire technology). These measure the buoyancy force acting on buoys within protecting cylinders. The signal is then transmitted to monitoring stations or control rooms where it is converted to flow rates (litres/sec) and can therefore also provide alarm signals at excessive flow rates.

REFERENCES

This simple and reliable system has been installed in more than 35 dams and used since 1969 with very satisfactory performance. The vibrating wire sensors have a proven excellent long-term reliability.

The system is designed by the Norwegian Geotechnical Institute. On a complementary basis, Geonor provides its experience in leakage monitoring system design.

TECHNICAL SPECIFICATIONS

Sensor:			
Type:	Vibrating wire (2 in each monitoring device)		
Operating range:	0-376 l/sec		
Accuracy:	≤ 0.3% FS		
Cylinder Frame:			
Dimensions:	2500 x 500 mm		
Material:	Galvanized steel		
Wave Filter:			
Material:	Stainless steel		
Discharge 90° V-notch weirs:			
	<i>Monitored discharge</i>	<i>Weir plate height</i>	<i>Outer dimensions</i>
	0-24 l/sec	200 mm	350 x 740 mm
	0-136 l/sec	400 mm	550 x 1140 mm
	0-376 l/sec	600 mm	750 x 1540 mm

ORDER REFERENCES

Part no.	Equipment
451000	Continuous leakage monitoring system: S-356 complete with 2 sensors, sensor protection cabinet and junction box, frame. (V-notch weir plates excluded).
56000	V-notch weir plate, 0- 24 l/sec
56100	V-notch weir plate, 0-136 l/sec
56200	V-notch weir plate, 0-376 l/sec
486000	Interface card with RS232 and analog output
458000	P-520H, Read out unit (accessory for manual reading of frequencies)