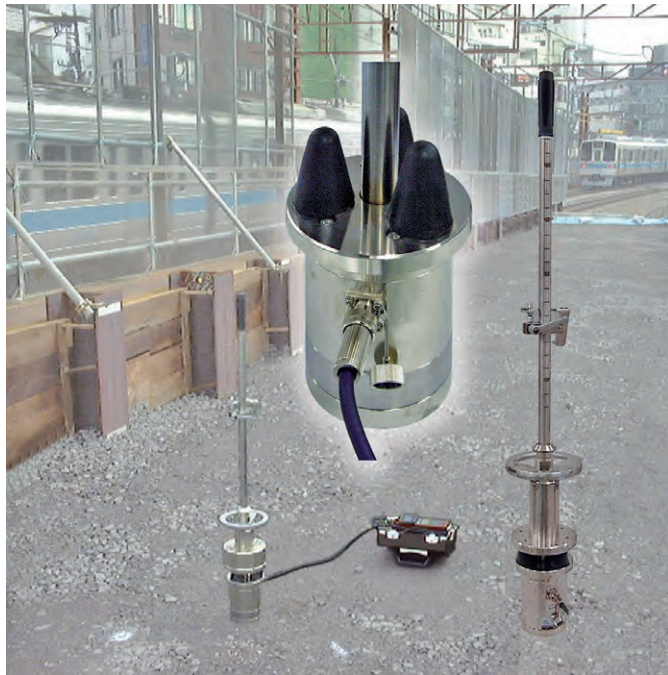


Subgrade reaction and elasticity modulus

FWD-Light TML Small Falling Weight Deflectometer

Civil engineering design

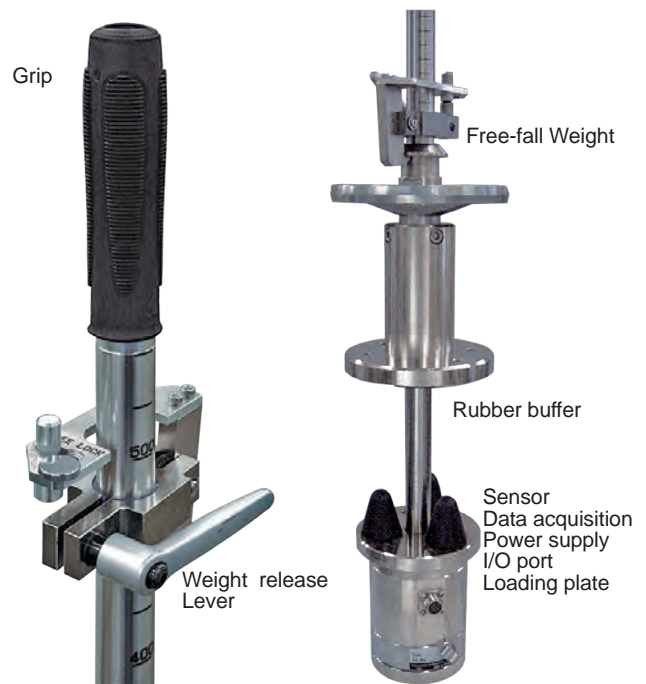


Simple and quick measurement of coefficient of subgrade reaction and modulus of subgrade elasticity

2-wire digital network lines

Battery driven

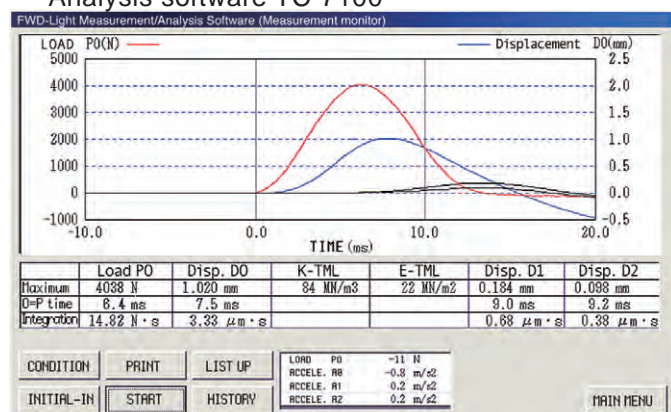
Main unit KFD-100A



FWD (Falling Weight Deflectometer) is used for estimating construction of pavement or rigidity of subgrade. Also, plate loading test is used for estimating characteristics of subgrade. However, these methods require much time and works for their preparation, data acquisition and analysis. TML small FWD System "FWD-Light" features excellent portability and enables simple and quick measurement of coefficient of subgrade reaction which is called K value and modulus of subgrade elasticity which is called E value. FWD-Light consists of main body KFD-100A and indicator TC-351F. The main body includes load cell and acceleration transducer whose measuring ranges are 20kN of load and 2.5mm of displacement at maximum. Values of maximum load and displacement, and analysis results of K value and E value are indicated on the indicator. Each analysis result can be stored in memory card and printed by exclusive printer. Data stored in memory card can be transferred to a personal computer by directly connecting the card or via the indicator. Measurement and processing software TC-7100 is available as an optional item for indicating waveforms of load, acceleration, velocity and displacement, O-P time and time product using personal computer.

Protection ratings : IP 42 equivalent

Waveform indication using optional Measurement/Analysis software TC-7100



Load and displacement measurements of four channels at maximum are possible.

SPECIFICATIONS

Type	KFD-100A	
Dimensions of loading plate	φ 100 x 15 (thick) mm (KFDF-31-100)	
Mass of weight	5 kg	
Falling height	50~530mm	
Falling method of weight	Lever with stopper	
Sensor	Load Cell	Rated capacity : 20kN Maximum load : 20kN
	Acceleration transducer	Rated capacity : 500m/s ² Maximum displacement : 2.500 mm
Data acquisition		
No. of measuring points	2 points (load and acceleration)	
Measuring accuracy	±(0.1% rdg.+2 digits) at 23±5°C	
Sampling speed	800 data/point, 50 μsec.	
Trigger function	By data (Load Cell) Pre-trigger saving	
Interface	Exclusive 2-wire serial transfer	
No. of external displacement transducer	4 points at maximum	
Power source	Supplied by TC-351F	
Environment	-20~+60°C 85%RH or less (No condensation)	
Protection ratings	IP 42 equivalent	
Height	Approx. 1,100 mm	
Weight	15 kg including 5 kg weight	

Exclusive indicator TC-351F



Designed for field measurement
 Measured data saved in CF card
 Acquires a lot of data in a short period of time
 Battery driven

■ SPECIFICATIONS

Type	TC-351F
Display	Liquid crystal display 128x64 dots
Monitor	Load, Acceleration, Acceleration of external displacement sensor, Time
Analysis results	Maximum load, Maximum displacement, Maximum displacement of external sensor, Coefficient of subgrade reaction (K_{TML}), Modulus of subgrade elasticity (E_{TML}), Indicates results of last four measurements
Data memory	7500 measurements at maximum
Memory card	CF card with adaptor, Capacity 8~128MBytes
Recording format	CSV
Interface	RS-232C
Power supply	Nickel-Hydride (Ni-MH) battery pack
Continuous operation	Approx. 32 hours or 1000 times measurements at 23°C±5°C when measured 30 times/1 hour by standard configuration with fully charged battery
Vibration tolerance	30m/s ² at 50Hz 0.6mm _{p-p}
Environment	-10~+50°C 85%RH or less (No condensation)
Dimensions	Approx. 150(W) x 120(H) x 265(D) mm
Weight	3 kg

The indicator indicates results of analyses and also saves them into CF card. Measurement/Analysis software (TC-7100) is required for measurement system with personal computer. In this system, data indicated on the indicator are transferred to the computer through the indicator without modification. Personal computer displays waveforms of load and displacement and also processes each analysis.

Protection ratings : IP 54 equivalent

Display exampled

No.	P0 [N]	D0 [mm]	K-TML [MN/m ²]
04	3290	0.501	279
03	3122	0.457	290
02	2751	0.402	290
01	2345	0.386	258

No.	E-TML [MN/m ²]	D1 [mm]	D2 [mm]
04	49	0.022	0.013
03	51	0.021	0.012
02	51	0.018	0.012
01	46	0.012	0.011

Monitoring external displacement sensor optional

OPTION

External Displacement Sensor KFDS-1B

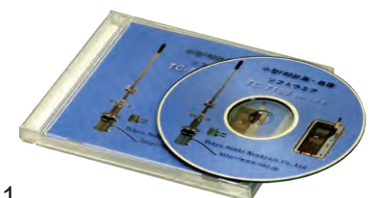
Measurement of external displacement of four points at maximum is available by combining External Displacement Sensor KFDS-1B.

- Maximum displacement: 1.000mm
- Dimensions φ79 x 125(H) mm
- Weight 1.5 kg



Measurement/Analysis software TC-7100

Measurement and processing software for controlling TML Small FWD and analyzing measured data using personal computer which runs on Windows OS. It is available as an optional item for indicating waveforms of load, acceleration, velocity and displacement, O-P time and time product using the PC.



Loading plate KFDF-31

Different size of loading plates are available depending on pavement or rigidity of subgrade.

- KFDF-31-90 90mm-dia.
- KFDF-31-150 150mm-dia.
- KFDF-31-200 200mm-dia.
- KFDF-31-300 300mm-dia.



Additional weight KFDF-11

Different loading weights are available to adjust the specified displacement depending on size of loading plate.

- KFDF-11-10 10 kg with KFDF-11-05
- KFDF-11-15 15 kg with KFDF-11-10

