Constant Stress Flexometer Test

Title

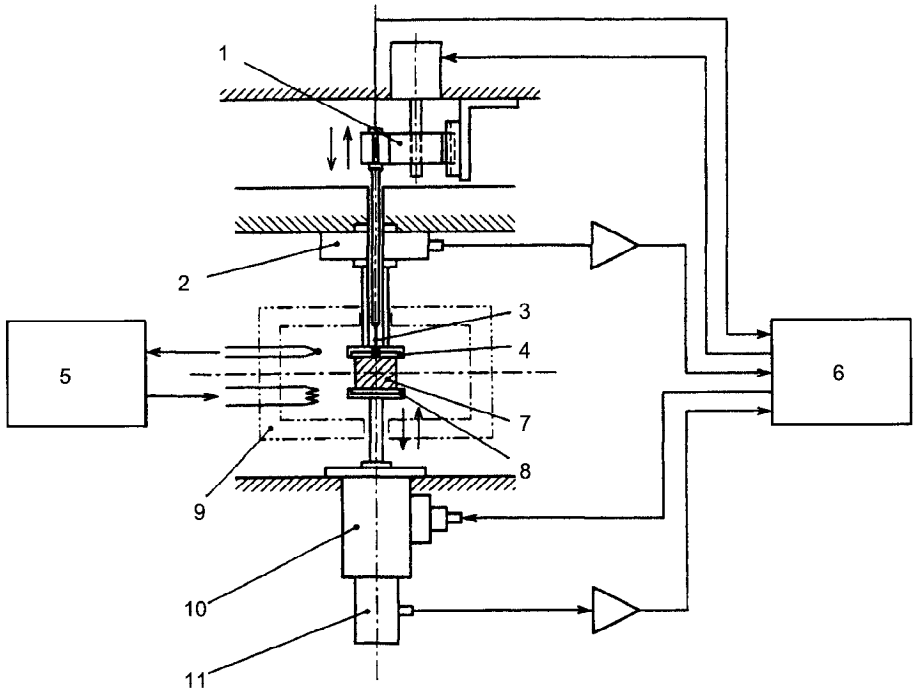
ISO4666-4:2007,Rubber, vulcanized– Determination of temperature rise and resistance to fatigue in flexometer testing –
Part 4 : Constant-stress flexometer

Outline

A cylindrical test piece is subjected to dynamic loading with constant peak stress cycles in compression superimposed on a static prestress.
The temperature rise of the test piece is measured and the fatigue life of the test piece is given by the number of cycles or the testing time until breakdown occurs. The change in height (creep) and dynamic properties are also measured as a function of time and compression set is measured at the end of the test.
Many rubber products such as tyres and belts are subjected to loading with constant peak stress amplitude. In order to obtain good correlation between the accelerated tests and service of these products, this method of testing gives directions for carrying out measurements under those conditions.

--See Fig.1(Principle of the test equipment) and Fig.2(Example of the test equipment)

Ueshima



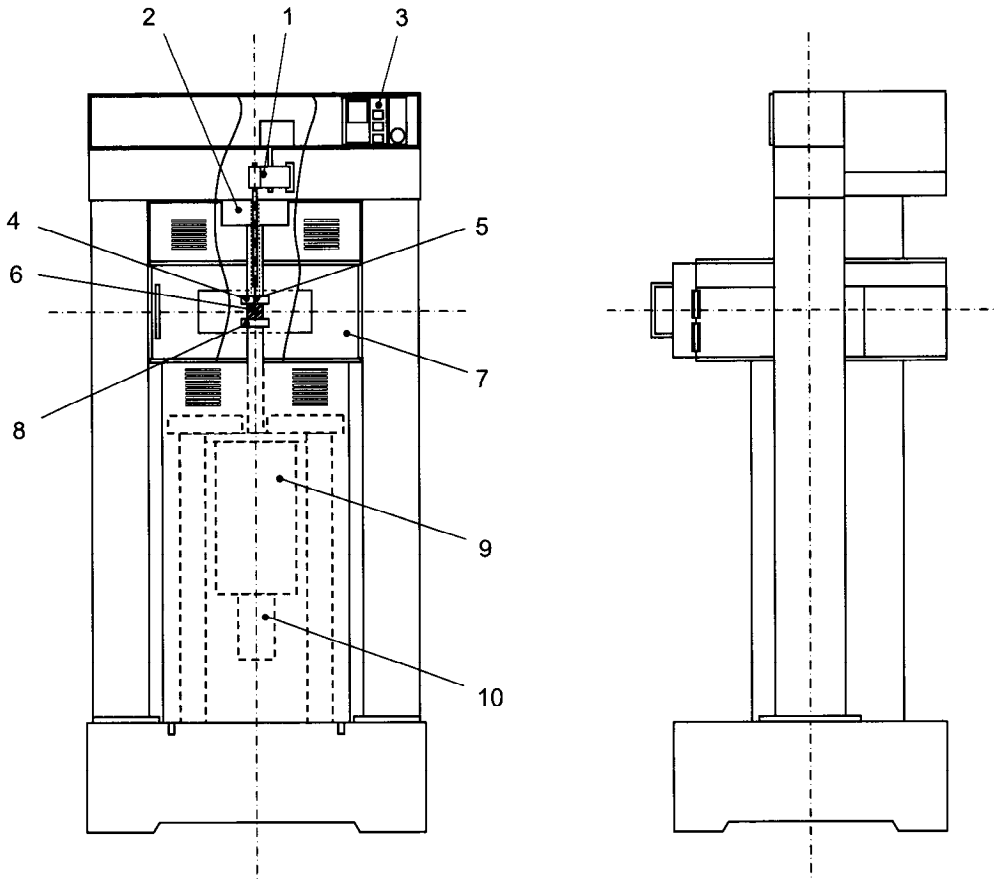
Key

1	position controller
2	load detector
3	needle type temperature detector
4	upper anvil
5	temperature controller
6	computer control unit
7	test piece
8	lower anvil
9	heating chamber
10	oscillator
11	displacement detector

Refer from ISO4666-4

Fig.1 Principle of the test equipment

Ueshima



Key

1	position controller
2	load detector
3	temperature controller
4	upper anvil
5	needle type temperature detector
6	test piece
7	heating chamber
8	lower anvil
9	oscillator
10	displacement detector

Refer from ISO4666-4

Fig.2 Example of the test equipment

Ueshima

Ueshima Constant Stress Flexometer

Model : FT-1200 Series

Testpiece	Shape : Cylindrical Dimensions : (A)φ17.8x25mm (B)φ30x25mm
Preloading	Method : By hydraulic cylinder with servo control Load : 0 to 500N(0 to 50kgh) continuously variable
Dynamic Loading	Method : By hydraulic cylinder with servo control Mode : (A) Constant strain amplitued (B) Constant stress amplitued Amplitude : (A) 0 to 6.5mmp-p continuously variable (B) 0 to15000N-p (0 to150kgf p-p) continuously variable
Load Detector	5000N (500kgf) rating load cell
Displacement Detector	20mm stroke differential transformer
Frequrncy	5 to 50Hz continuously variable
Temperature Range	50 to 150℃
Measuring of Testpiece Temperature	By a needle type thermocouple continually position-controlled at the center of the interior of testpiece.
Measurement	Temperature rise of testpeice、Creep、Energy Loss、Visco-elastic parameters
Electrical Supply	Main body (single phase AC100V 1.5kVA 50/60Hz) Hydraulic unit (3phasesAC200V 4kVA 50/60Hz)
Cooling Water Requi	Temperature :Lower than 28℃ Flow rate : 20L /min

Ueshima