

# Film Heat Shrinkage Tester

## GBK-D1

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## **Product Introduction**

Film Heat Shrinkage Tester tests various heat shrinkage properties for the film according to the principle of air heating (air bath). Suitable for heat shrinkable films which produced with polyethylene, ethylene copolymers and their mixtures, such as beverage labels, bottled bundle packaging, sausage shrinkage packaging, outer film of daily chemical products, outer film of cigarette boxes, etc.

It is a device that can accurately and quantitatively measure the thermal shrinkage force, cold shrinkage force, shrinkage rate, shrinkage time and other properties of plastic films during thermal shrinkage.

The test results have a variety of data, which can evaluate the heat shrinkage performance of the film from different aspects, contribute to the research and development of heat shrinkable films of different materials, ensure the stability of heat shrinkable films performance of various materials, and meet the requirements of various heat shrinkable films in various industries.

GBPI checks the key thermal shrinkage properties of film products for you. The traditional oven or oil bath equipment only detects the heat shrinkage rate of the heat shrinkable film, and the test results are relatively limited. Our Film Heat Shrinkage Tester GBK-D1 can evaluate the thermal shrinkage performance of films from various data. It is easy to operate, environmentally friendly, with high data accuracy and more comprehensive test results to meet your requirements.



## Standard:

GB/T 34848-2017、ISO 14616-1997、DIN 53369-1976

## Test principle

This tester uses the principle of air heating to connect the tested sample to the tension sensor and displacement sensor. After reaching the maximum shrinkage force, it is placed in an external test environment with an ambient temperature of  $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$  to cool down, the instrument continuously records the reference temperature, shrinkage force, and displacement, the recorded data can be used to determine optimal shrinkage conditions for the film.

The internal structure of the instrument is shown in Figure 1

Force and Shrinkage Measurement Chartis shown in Figure 2

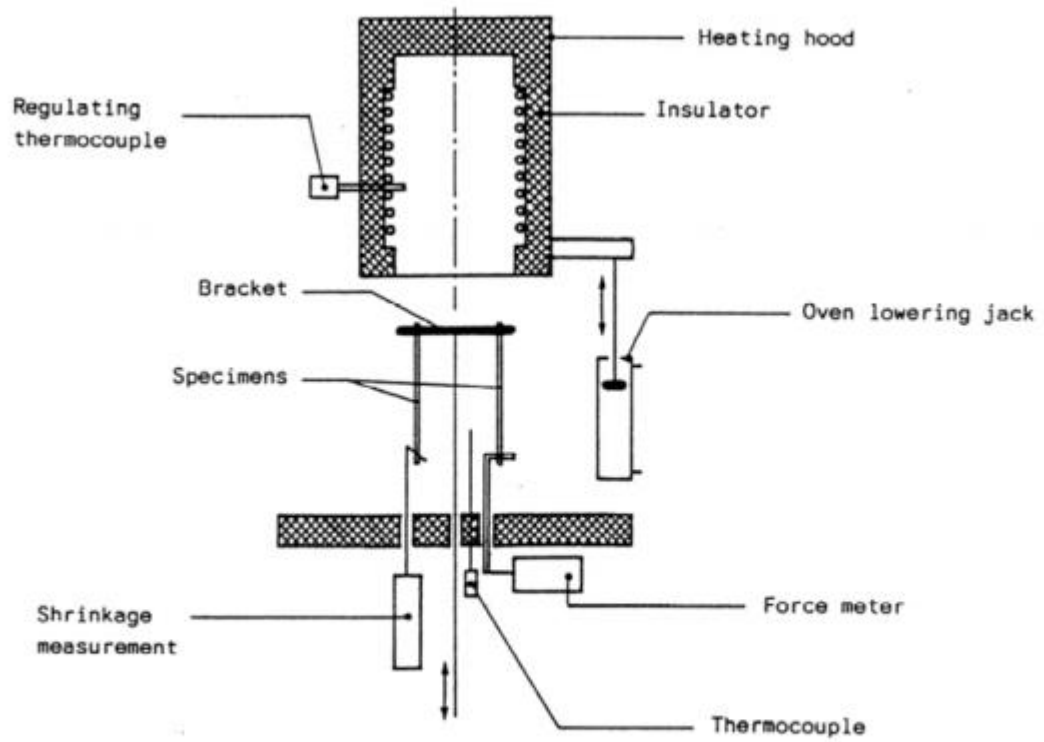


Figure 1 - Example of apparatus

Figure 1

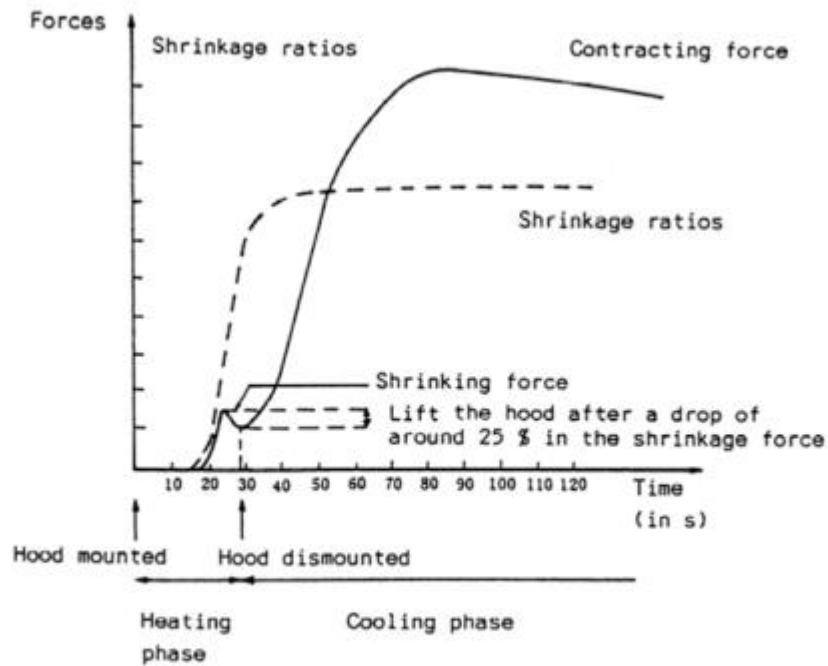


Figure 2 - Measurement of the forces and of the shrinkage ratio - Example of typical kinetics of the phenomena

Figure 2

## Specification

Item	Technical Parameters
Sensor Specifications	5 N (standard) 10 N、30 N (optional)
Contraction force accuracy	Display value $\pm 0.5\%$ (10%-100% of sensor specification ) $\pm 0.05\%FS$ (0%-10% of sensor specification)
Display resolution	0.001 N

Displacement measurement range	0.1~70 mm
Displacement sensor accuracy	±0.07 mm
Shrinkage measurement range	0.1%~95%
working temperature	room temperature~210℃
temperature fluctuation	±0.2℃
temperature accuracy	±0.5℃ (Single point calibration)
Number of workstations	1 Set (two stations)
Sample size	110 mm×15 mm(Standard size)
Dimensions	480 mm(L)×400 mm(W)×630 mm(H)
Power supply	220VAC±10%50Hz/120VAC±10%60Hz
Net weight	26 kg

## Features

- ◆ Laser measurement technology, Non-contact precise measurement.
- ◆ High-precision force sensor and displacement sensor, can accurately determine the thermal shrinkage performance parameters of the sample.
- ◆ Automatic temperature control, intelligent digital PID algorithm.
- ◆ The system displays the heat shrinkage force, cold shrinkage force and heat shrinkage rate in real time during the test.
- ◆ With built-in system, more safety.
- ◆ User hierarchical permission setting, meeting GMP requirements, test record auditing, and tracking functions.
- ◆ Support DSM laboratory data management system, which can be maintained and upgraded remotely.

## Application



Beverage film packaging



sausage shrink wrap



film packaging



Daily chemical film packaging



tableware packaging film



Parafilm

## Configuration

Standard: Host, professional software, keyboard, mouse, sampling board, wireless data interface

Optional: Printer (need to be compatible with standard PCL3 print command language)



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