



BALL DROP



DESIGN AND PRODUCTION OF
INSTRUMENTS AND APPARATUS
FOR QUALITY CONTROL
ON MATERIALS

These instruments are made in
compliance with CE health and
safety requirements



Scope

The Ball Drop code 6211.000 can carry out impact tests on thin flexible materials such as: plastic films, plasticized papers, composite sheets and material comparable to these, clamped horizontally by means of a specimen clamping device according to ISO 7765-01, ASTM D 1709, NF T 54-109, similar to the one in the drawing. Additionally both Ball Drop versions are able to carry out also test on films with height impact elongation (500 mm limit dart displacement). The test covers the determination of the energy that causes failure under specified conditions of free falling dart impact.

This energy is expressed in terms of the weight, of the dart falling from a specified height, which would result in 50% failure of specimens tested. During tests, a uniform dart weight is decreased or increased after each specimen tested, depending on the result (fail or not fail) observed on the specimen.

The Ball Drop code 6212.000, besides the features and performances offered by the model code 6211.000, can carry out tests according to standard BSU 2782 - Method 352D. Such method foresees specimen clamping by means of vacuum available on the ring supporting the specimen (see the drawing), and dart weights are different from the ones for the model code 6211.000.

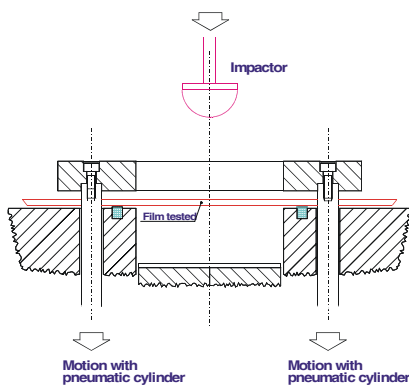
For example, in ASTM D 1709 two test methods are employed: Test method A uses a dart (hemispherical head) of 38 mm diameter, dropped from a height of 660 mm, used for film whose impact resistance requires masses of about 50 g (or less) up to 2 Kg to fracture them. Test method B employs a dart (hemispheric head) with 50 mm diameter dropped from a height of 1500 mm, whilst the BSI 2782- Method 352 D foresees darts (hemispheric head) with 38 mm diameter and mass of 20 g or 60 g, both dropped from a height of 660 mm and equipped with those weights described on table on pag. 3.

Standards

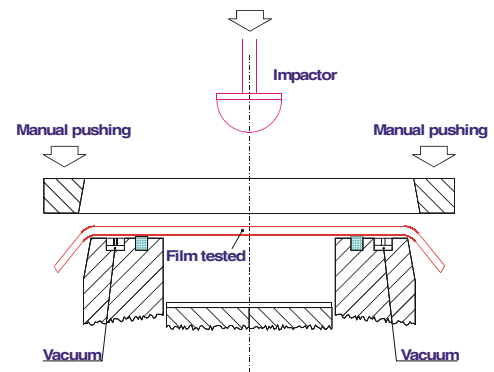
Designed and built to meet the following standards:

ISO 7765-1, ASTM D 1709, NF T 54-109, BSI 2782 - 352 D

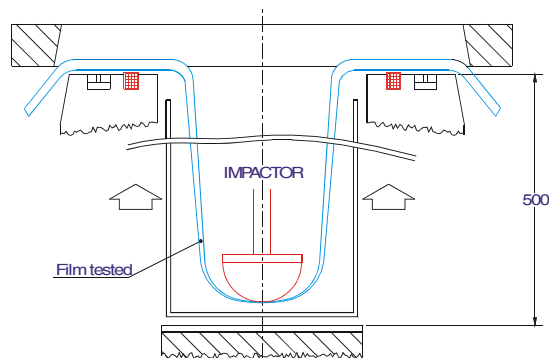
and other equivalent.



Drawing of the specimen clamping according to ISO, ASTM and NF Standards



Drawing of the specimen clamping according to BSI Standard



Drawing concerning the possibility of 500 mm film elongation with dart recover system after tests

Ancillary equipment	Code 6211.000	Code 6212.000
Drop height	1530 mm max., adjustable according to the test to be performed	
Specimen clamping	By means of clamping system pneumatically operated at constant pressure	
	Surfaces in contact with the specimen made with anti-slip material	
		Ring to support specimen according to BSI standard
	Support with a (125 ±2) mm central diameter hole	
	Clamping plate manually operated	
		Vacuum systems manually operated with vacuum indicator
	Dart collecting tub with impact surface made of soft material	
Base structure	Lacquered steel sheet	
	Support feet, adjustable, to level the apparatus	
	Support plate for the specimen clamping vice system	
	Housing the components for the pneumatic circuit (filtering, lubrication unit, cylinders, valves, connections, etc.) sliding along to vertical support pipe clampable at the desired height	
		Vacuum pump with pneumatic and electrical circuit
Clamping film device release unit	Release unit pneumatically operated	
		Automatic release of the dart when the predetermined vacuum level has been reached
Dart release after impact (500 mm dept)	Manually with special tool	
Darts and additional weights	ASTM D 1709/A - code 6206.001 and the following weights: 2 x 5 g, 8 x 15 g, 8 x 30 g, 8 x 60 g	
	ASTM D 1709/B - code 6206.002 and the following weights: 2 x 15 g, 8 x 45 g, 8 x 90 g	
	NF T 54-109/A - code 6206.009 and the following weights: 24 x 15 g, 2 x 5 g	
	NF T 54-109/B - code 6206.010 and the following weights: 24 x 40 g, 2 x 5 g	
		BSI 2782 - Method 352 D - code 6206.051 and the following weights: 1 x 1 g, 2 x 2 g, 1 x 5 g, 1 x 10 g, 1 x 15 g, 1 x 20 g, 1 x 40 g
		BSI 2782 - Method 352 D - code 6206.052 and the following weights: 2 x 50 g, 2 x 100 g, 1 x 200 g, 1 x 550 g

Ancillary equipment

Additional dart and weight	code 6206.009	Dart 38.1 mm diameter (weight 32 g) Weights 24 x 15 g, 2 x 5 g For tests according to standard NF T 54-109 - Method A
	code 6206.010	Dart 50.8 mm diameter (weight 320 g) Weights 24 x 40 g, 2 x 15 g For tests according to standard NF T 54-109 - Method B
Hollow dies	code 8063.020	Circular die 200 mm diameter with ejector, to be used only with Automatic Hollow Die Punch code 6053.000 for specimens according to standards ISO 7765-1, ASTM D 1709 and NF T 54-109
	code 8181.020	Square die 260 x 260 mm with ejector, to be used only with Automatic Hollow Die Punch code 6053.000 for specimens according to standard BSI 2782 - Method 352 D

Technical Data**Code 6211.000****Code 6212.000**

Overall dimensions (LxDxH) [mm]	1000 x 830 x 2650	
Weight [kg]	95	130
Supply	230 V - 50 Hz - Singlephase 110 V - 60 Hz (on request)	
Power [W]	500	
Paint	fuchsia RAL 4006 - gray RAL 7035	

"Due to the continuous development policy of CEAST's Research and Development Department, changes may be introduced without notice"



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