

**Production:** PEAS

**Objective:** Measurement of the firmness of peas

**Type of action:** Penetration test

**Test mode settings:**

Speed	Test mode	Trigger	Target	Hold
2 mm/s	Distance (c)	5 gf	15 mm	0 sec

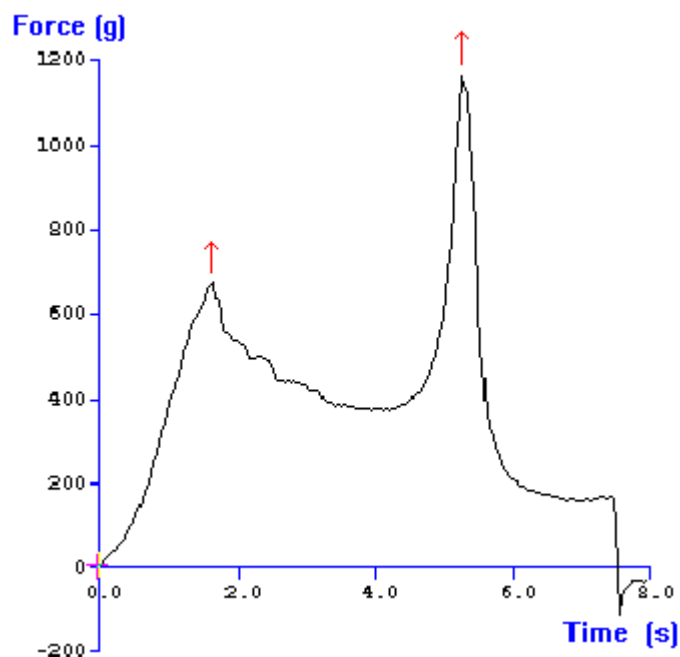
**Accessory:**

Multiple Pea Test Rig, Platform

**Test Set-Up:**

Place the Heavy Duty Platform on the base of the machine and loosely attach. Insert the base plate of the multiple pea test rig into the Heavy Duty Platform and tighten the screws. Before commencing the test one must ensure that the upper pronged element (which is attached to the load cell carrier) fits into the base plate holes with clearance, i.e. when the upper element is lowered, the prongs must not come into contact with the base plate. Running a 'blank' test i.e. a test with out any sample in the rig can check this. This will require accurate positioning of the Heavy Duty Platform. Once positioned, the Heavy Duty Platform must be secured by tightening the screws into the machine base. Roll the sample peas onto the base plate, to fill the 18 provided cavities, and commence the test.

**Typical plots:**



The above curve was produced from testing 18 canned peas at 20C.

**Observations:**

The first peak is the average force required to puncture the upper skin surface of all of the pea samples. After this point the prongs then proceed to penetrate the internal tissue of the samples. Peak 2 is obtained as a result of the prongs penetrating through the lower surfaces. This peak is higher due to the movement of the prongs towards the base plate holes.

**Data Analysis:**

☒ Max Force (from 0 to 4 second)

☒ Max Force (from 4 to 6 second)

**Results**

Sample	Mean Peak 1 Force 'Upper Skin Strength' (+/- S.D.) (g)	Mean Peak 2 Force 'Lower Skin Strength' (+/- S.D.) (g)
A	730.8 +/- 59.3	1140.9 +/- 103.4

**Notes:**

- The tissue firmness can be determined by dropping anchors at 2.5 and 4 seconds and taking the mean force between these two points.
- When attempting to optimize test settings it is suggested that the first tests are performed on the hardest samples to anticipate the maximum testing range required and ensure that the force capacity allows testing of all future samples.