



TESTING MACHINES, INC.

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Section 2 – Sample Preparation for Paper Testing

PRECISION SAMPLE CUTTERS

Product link: <http://www.testingmachines.com/product/22-25-precision-sample-cutters>

Application & Specification

The accuracy of test results is not only dependent on the accuracy with which the procedure is carried out but also on the accuracy of cutting the test pieces (specimens) from the original sample. Some tests, for example tensile strength and edge crush, are particularly sensitive and cutting accuracy is a prime cause of variation in the values obtained.

Test pieces cut by hand are greatly dependent on operator skill and the state of template and knife blade, giving rise to potential weak spots along the edge, which will instigate the sample rupture. The use of a guillotine does not necessarily ensure parallel edges and, unless the sample is very rigidly held, can give rise to slight curvature of the cut edge. Both these phenomena will give rise to error in test values, the first due to the strength of the specimen varying according to thickness and the second due to the strain being applied to the concave side of the test strip. Precision cutters have been designed to eliminate these causes of error.

A series of such instruments is now available with punch and die action, manufactured with dimensions suitable for use with the range of tests most sensitive to the accuracy of sample preparation.

The punch and dies are machined to very high tolerances and if used correctly, are long lasting.

The instruments are lever operated and are suitable for cutting samples of paper, light carton board, film and foil with exceptional accuracy. They conform to all standard procedures of the specific tests to which they apply.

Instruments are supplied for cutting areas of 100 sq.cm. in square or circular form and in rectangular form with dimensions to suit specific test procedures.

Operational Characteristics

Provided the cutting edges are maintained in good condition, the design of these instruments eliminates all operator error due to sample cutting. In addition the force applied by means of the lever system is such that the instrument is simple and easy to operate, resulting in rapid and accurate test piece production.

Comparison with Other Instruments

The use of the punch and die principle of operation quickly repays the price of a more expensive instrument through the accuracy which it provides. A reduction in the number of specimens needed is often achieved and statistically, the variation in results is greatly reduced leading to a more accurate determination of product quality.

PRECISION CIRCULAR SAMPLE CUTTERS

Product link: <http://www.testingmachines.com/product/22-25-precision-sample-cutters>

Application

This series of instruments has a vertical cutting action on samples, which are firmly held round the circumference of the cutting area.

The cutting blade is constructed in the form of a sine wave, so that when applied to the paper or board sample, the extent of contact with the sample increases as the blade is lowered, until the cutting circle is complete. This action makes the instruments particularly suitable for producing accurate clean cut specimens from the heavier weight boards. They are nevertheless equally suitable for all types of paper and board other than multilayered material of the corrugated type where the pressure on the circumference of the sample could cause crushing.

These sample cutters are also suitable for cutting samples from other materials such as textiles and plastics.

Specification

Each cutter is fitted with a removable die for ease of sharpening and is fitted with an adjustable safety guard.

The K211 and K212 models are designed to cut specimens 100 sq.cm. in area but the K213 can be manufactured to give an alternative circle area.

The K211 is operated by means of a lever but the K212 is pneumatically operated and requires a line pressure of 600 kPa.

Operational Characteristics

All instruments are simple to operate and maintain. The design ensures that operator error is virtually eliminated and that clean-cut samples are produced.

The pneumatic version is quicker to operate and requires less effort on the part of the operator.

Comparison with other Instruments

These instruments are more efficient than the rotating blade varieties but although cleancut samples can be produced from them, obviously they do not possess the absolute precision of a specially designed precision cutter.

TWIN BLADE CUTTER

Product link: <http://www.testingmachines.com/product/22-34-twin-blade-cutter>

Applications

Paper cutters are used extensively for the many applications where samples need to be accurately cut to size but without the need for the extreme precision that some specific test procedures require.

Most cutters now used in the laboratory are ergonomically designed for speedy and safe operation with preset gauge stops to give the desired dimensions to the cut specimens.

The instruments are suitable for cutting most papers, lightweight boards, plastics, films and foil.

Specification

These cutters are of all metal construction apart from the Plexiglas safety guard. The cutting blade is of high quality steel, which gives a long life and minimizes the need for resharpening.

The sample is automatically clamped as the blade is lowered and the front and back gauges are fully adjustable with gradations in millimeters and inches. Models are available to give a wide range of cutting lengths.

Operational Characteristics

The ergonomic design allows quick and easy operation and makes the instrument maintenance free, requiring only normal housekeeping.

CORRUGATED SAMPLE CUTTER

Product link: <http://www.testingmachines.com/product/22-76-corrugated-sample-cutter>

The 22-76 Corrugated Sample Cutter is designed to cut a variety of corrugated sample sizes for Edge Crush Tests (ECT) and Pin Adhesion Tests (PAT).

The heavy duty adjustable width cutting head and precision slide system assures precise, parallel edges. Its single-beveled blades provide clean, square cuts. The instrument is rugged, portable, and does not require air or electric connection, allowing its use in almost any environment.

Features

- Portable
- Safe and easy to use
- Cuts single wall and double wall
- Adjustable width cutting head
- Precision bearings
- No air lines necessary
- Rugged design for many years of use
- Conforms to TAPPI T-811