INTERNATIONAL STANDARD ISO 3385

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Flexible cellular materials — Test for dynamic fatigue by constant load pounding

Matériaux alvéolaires souples — Essai de fatigue dynamique par indentation à charge constante

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Flexible cellular materials — Test for dynamic fatigue by constant load pounding

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of loss in thickness and loss in hardness of flexible cellular materials intended for use in upholstery.

This test method provides a means of assessing the service performance of flexible cellular materials of the latex and polyether urethane types used in load-bearing upholstery.

The measured loss in thickness and loss in hardness are related to, but are not necessarily the same as, the losses likely to occur in service.

The method is applicable both to standard size test pieces cut from stock material and to shaped components.

2 REFERENCES

ISO/R 1794, *Flexible cellular materials — Measurement of dimensions of test pieces.*

ISO 2439, *Flexible cellular materials — Hardness testing by indentation techniques.*

3 PRINCIPLE

Repeated indentation of a test piece by an indentor smaller in area than the test piece, the maximum load reached during each cycle being kept within specified limits.

4 APPARATUS

Pounding test machine, having the following parts :

4.1 **Plane platen**, capable of fully supporting the test piece, and suitably vented with holes approximately 6 mm diameter at approximately 20 mm pitch in order to allow air to escape from the test piece.

4.2 **Indentor**, having an overall diameter of 250 ± 1 mm with a 25 ± 1 mm radius at its lower edge, provided with a device for applying a maximum force of 750 ± 20 N during one loading cycle. The indentor shall be rigidly fixed to its guide and its surface shall be smooth but not polished.

By means of a crank or other suitable mechanism, the machine shall be capable of oscillating either the platen (4.1) carrying the test piece, or the indentor support mounting (4.3), towards the other in a vertical direction at a rate of 70 ± 5 strokes per minute. The amplitude of the stroke shall be adjustable.

4.3 **Indentor support mounting**, such that the indentor force is carried by it except at that part of the stroke when the mounting and platen are closest together; at this point the full force of the indentor shall be supported by the test piece. The indentor shall be free to be lifted in its mounting to prevent overloading of the test piece. Means shall be provided whereby at any stroke the time can be controlled during which the full force is exerted by the indentor. This time shall be no more than 25 % of the total duration of each cycle.

4.4 **Force measuring device**, whereby the load applied to the test piece by the indentor can be measured. A suitable method consists in mounting the platen upon load cells.

NOTE — Where adjustment is manual, the indentor is attached to the lower end of a shaft which passes through a vertical guide above the platen carrying the test piece. Adjustment of the vertical position of the indentor relative to the platen controls the length of time at any stroke that the full force of the indentor is supported by the test piece. A suggested arrangement is shown diagrammatically in figure 1.

A suggested method of securing automatic adjustment is shown in figure 2, whereby the length of time during which the test piece supports the indentor is controlled directly by the time during which the valve is open.

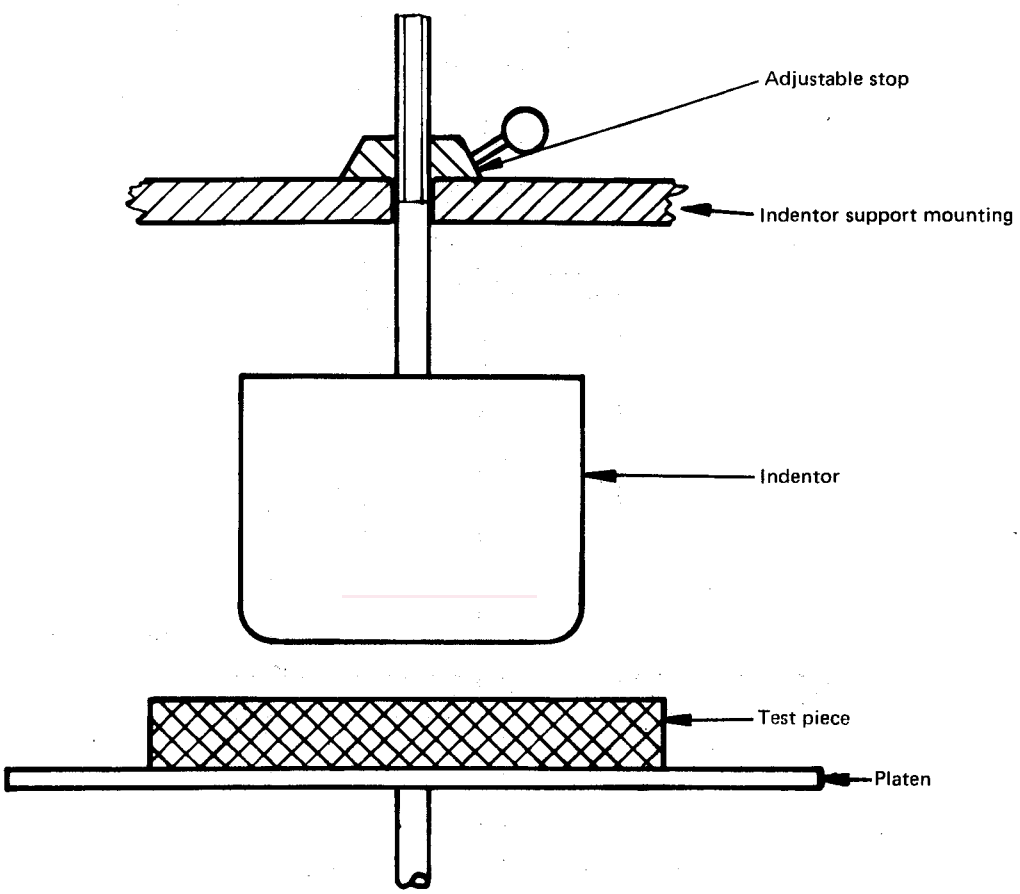

FIGURE 1 – **Diagrammatic arrangement for manual adjustment machine**