

Miniflex CLD



Automatic Foam Hardness Tester

PC computer controlled

High specification

Why measure foam hardness?



All foamers measure the density of their product. Not all foamers, however, measure foam hardness.

Foam hardness has a major influence on the comfort factor of the furniture, bedding or automotive product in which it is used. Variation in hardness is one of the most common complaints from customers.

Trying to judge the hardness of a foam sample by hand-feel is almost impossible. Every person will have a different opinion.

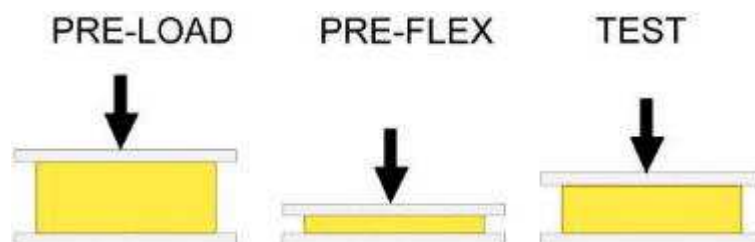
To ensure consistent Quality Control of foam production, it is necessary to have an industry-recognised foam hardness test procedure that will give an accurate, recordable value.

No more disputes between supplier and customer - the hardness can be measured accurately.

Hardness test methods

The foam industry measures foam hardness by various different tests. These can be grouped as either ILD (Indentation Load Deflection) or CLD (Compression Load Deflection) type tests.

The DIN 53577 / ISO 3386 CLD test is used widely throughout Europe by flexible slabstock manufacturers. It uses a foam sample of dimensions 100 x 100 x 50 mm.



The test procedure first measures the thickness of the foam sample (pre-load). It is then compressed three times to 30% of its original thickness (pre-flex) at a defined speed.

Finally, the sample is compressed to 60% of its original thickness and the force necessary to do this is measured and recorded. This force, normally expressed as pressure in kiloPascals (kPa), is the hardness value.

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Hardness testing could not be simpler !

We have taken the standard DIN / ISO hardness test method, completely automated it and fitted it all into a small, neat case which will sit easily on your desk or work-bench. Robust mechanical design combined with integrated electronics and advanced software.

Miniflex CLD connects to your PC computer using a standard USB cable. The complete hardness test procedure is handled by the Miniflex computer

program.

Just place the foam sample inside the compression slot, close the safety door, click the mouse button and the hardness test will be carried out totally automatically.

Improves test laboratory efficiency

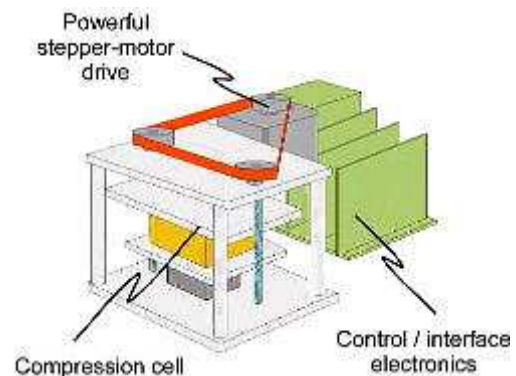
The hardness test is completely automatic – no input required by the technician. Other duties can be carried out while the hardness test is being made.

Foam compression cell unit

Robust mechanical construction. Force measurement by precision load-cell. Sample is compressed by solid metal platen, supported by high-accuracy ball screws. Vertical position of platen constantly monitored by a sensitive electronic device.

Stepper motor drive

The compression cell platen is driven by a powerful stepper motor, which can exert a compressive force greater than 40 kg.



Control electronics

The electronic circuits provide the input to control the stepper motor drive and handle the output information from load cell and platen position device.

Communication with your PC computer is by means of a USB interface. This connects directly to the PC with a standard USB cable.

The Miniflex CLD hardness test unit comes complete with mains power supply, USB cable, software on CD ROM disk and easy-to-read, illustrated Instruction Manual.

Just insert the foam sample and click.

..... Miniflex CLD does the rest!

Miniflex CLD

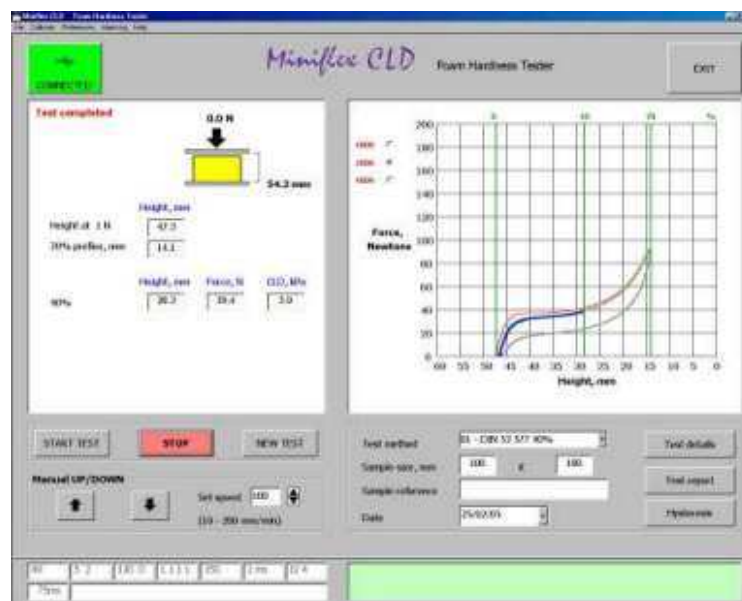
Powerful software package

A unique software package has been developed for Miniflex CLD. This not only controls all the operating functions of the Miniflex unit but provides features not offered by any other foam hardness testing machine.

Force / compression graph – in real time!

As the test is being carried out, a real-time display on your PC screen shows the progress. Force and sample height are constantly displayed and a graph is continuously drawn.

Each pre-flex curve is drawn in a different colour and the final CLD curve is clearly identified.



At the end of the test the CLD test value is displayed.

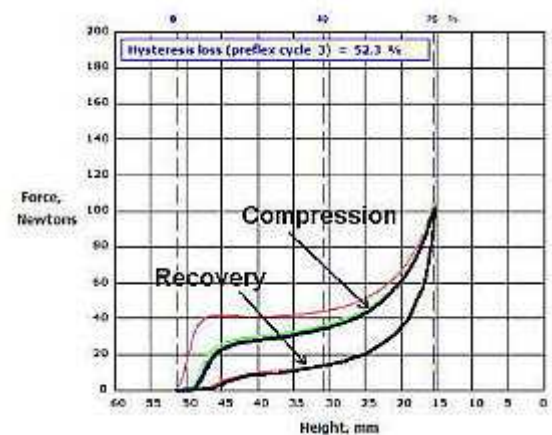
Hysteresis loss – a guide to foam quality

During the final pre-flex cycle measurements of the shapes of the compression and recovery curves are automatically recorded.

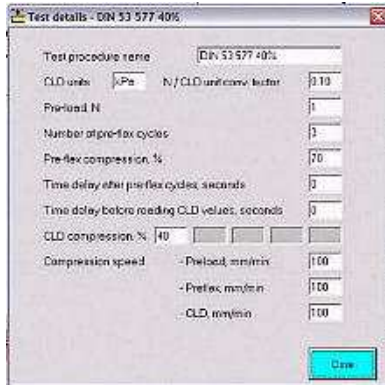
The area under each curve represents the work done and energy recovered during this cycle. The difference between these two areas, expressed as a percentage, is the “hysteresis loss”.

This hysteresis loss is a useful guide to the resiliency, or quality of the foam.

Foams which recover more quickly after use will have a lower hysteresis loss.



Test methods



Some standard test methods (such as DIN 53577 and ASTM 3574 – 91) are already installed in the Miniflex CLD software.

Up to 20 test methods can be stored and all the test parameters can be adjusted. This enables foams to be tested to any required standard procedure – even to the user’s own special in-house test method.

ASTM 25% recovery test

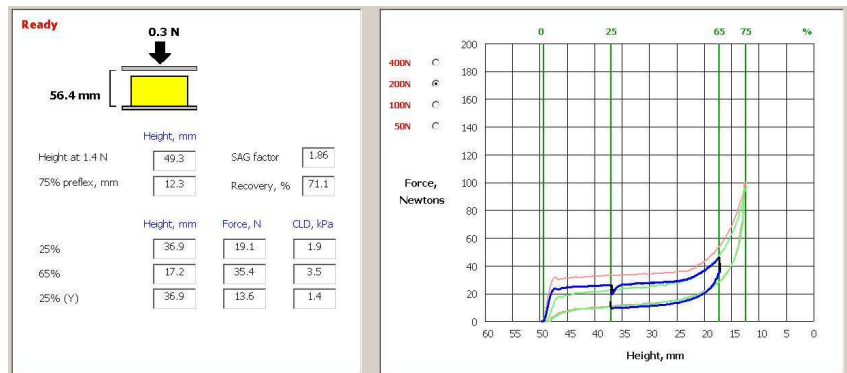
We have now included this test which is popular with many foamers.

Miniflex CLD reports...

SAG factor

25% recovery

(% load measured during recovery versus compression)



This test takes a long time – about 20 minutes. No input required by the operator during the test – free to perform other duties.

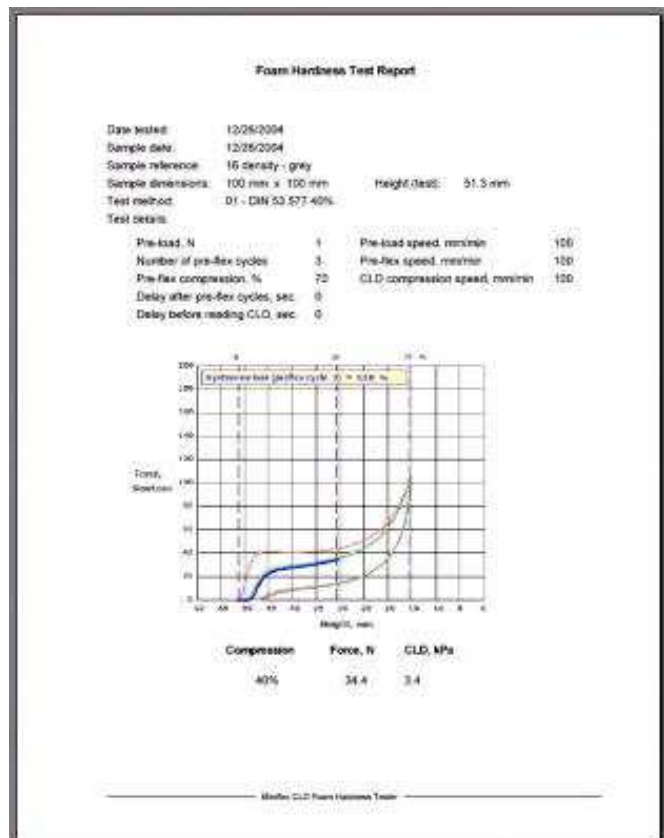
Test reports

After each test, a test report can be generated – in the popular pdf (Adobe Acrobat ®) format. This is automatically displayed in your Acrobat Reader. If you do not already have Acrobat Reader on your PC, the Miniflex CLD installation disk can install it for you.

The test report can be saved, printed, e-mailed as required.

Auto-save feature

If required, Miniflex CLD will automatically save each test report in a special Test Report folder at the end of each test.



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Specification

- Compact, portable - 16 cm wide x 14 cm high x 20 cm deep. Weight less than 4kg
- Simple operation. Plug in power lead. Plug in USB lead. Switch on.
- Fully automatic - insert the foam sample and click the START button
- Foam sample size up to 10 x 10 x 5 cm thick (standard sample size for DIN 53577 / ISO 3386 hardness test)
- Full software package included (for Microsoft Windows XP, Windows Vista, Windows 7 operating systems). Easy to install and use.
- Auto-calibrate feature
- Software gives real-time graph of load v. compression during the test
- Hardness values at standard 40% compression or user-defined setting
- Standard hardness test methods built into the software. Stores up to 20 test methods.
- Facility for setting different compression speed, % compression , etc.
- Calculates equivalent hardness values for other test methods, eg. BS 4443, ASTM D3574
- Compression load to 40 kgf (400N) , with resolution better than 1N over the normal CLD measurement range 0 - 200N
- Compression thickness resolution better than 0.25 mm
- Power supply 12 – 15 v DC 5W . Power unit (universal input 110 - 240 v) supplied.
- Comprehensive, easy-to-read Instruction Manual

For further details, please contact us:

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