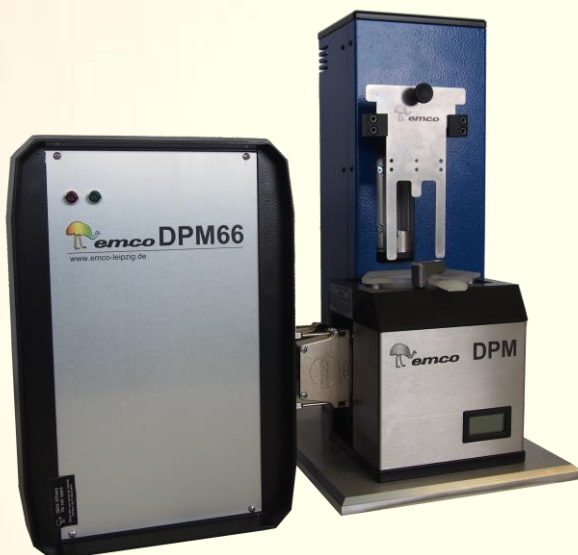


emco DPM 66

Universal Ultrasonic Transmission Measurement
Measuring systems and methods for test of paper, foils, plastics and composite materials

An innovative method for studying the composition of paper and other materials, liquids and the dynamics of their interaction

Measuring systems and methods



emco DPM66 - Dynamic Penetration Measurement

Methods for the process relevant evaluation of characteristics for hygroscopic materials:

- dynamics of the behaviour in comparison with water
- dynamics of the capillary absorption
- dynamics of expansion and shrinking
- evaluation of the surface sizing

Areas of applications:

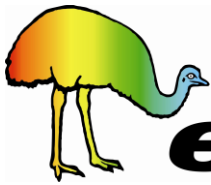
- research, development and training
- quality assurance and control
- objective examination of complaints
- evaluation of reference quotations at purchase

Technical data

Measuring frequency:	1 and 2 MHz - standard	Automatic measuring sequence with 2 frequencies, transmission and reflexion from both sides - up to 12 tasks simultaneously.
Measuring area:	each frequency 2x 10 mm Ø	
Measuring range:	0 to - 60 dB	Accessories for special applications:
Measuring duration:	up to 24 h	
Measuring beginning:	approx. 8 ms	
Test liquid:	distilled water *)	<ul style="list-style-type: none"> • heatable measuring cell up to 90 °C • cell insert for special test liquids • sample holder for different applications
Power supply:	100/240 VAC, 50/60 Hz	
Software:	emco DPM66 and emcoDPM66 Viewer	Extended accessories:
PC-interface:	USB 3.0	

*) standard test liquid; other liquids, solvents, printing inks, coating colours etc. can be used with a cell insert

- dynamic expansion module **emco DDPM** for the simultaneous determination of the wet expansion
- **emco DPM** Interpreter - Sizing to determine the sizing of a paper



Knowing paper better!

emco

Technology connects

DPM 66

Measuring principle

Ultrasonic – Transmission Measurement: The ultrasonic sensors are arranged so in a measuring cell that the sample is penetrated of the sound wave on a direct way.

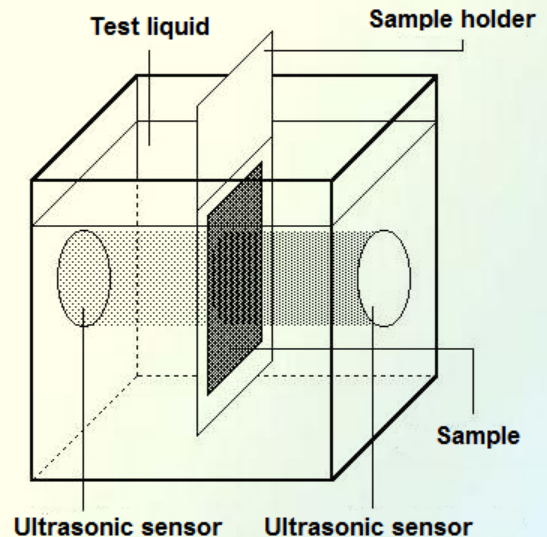
In the result of the measurement the ultrasonic intensity, which is measured in a millisecond clock, is represented at the receiver as a transmission-time-diagram.

Ultrasonic – Reflexion Measurement: The change of the surface could be detected by the reflected wave during penetration by the liquid. The sensors are arranged to measure from both sides simultaneous.

Physical basics: During the transmission over this medium this sound wave sustains a constant damping. If the medium is changing, then the sound intensity is also changing.

Technical basics: During the measuring operation the material sample is fixed on a sample holder and contacted with the examining liquid. The dynamics of the interaction between the examining liquid and the test sample characterizes whose fibre absorption and capillary absorption.

The properties of the front and the back side of the sample can be measured independently of each other. At the same time the changing of the dimension (wet expansion) can be measured.



Methods – applications

emco DPMprint - for the assessment of the printing process relevant characteristics and its sidedness of a printing substrate:

- dynamics of the behaviour in comparison to water, dampener additives and solvents
- capillary absorption regarding to colour absorption and colour drying
- dynamics of expansion and shrinkage according to changing of climate and moisture

emco DPM Sizing - for the assessment of the sizing degree of a paper and characterization of the surface sizing, internal sizing and starch based on the *emco* DPM - basis curve:

- dynamics of the wetting phase of the paper surface
- dynamics of the capillary absorption
- dynamics of the fibre absorption

Coating papers / coating base papers

- examination of coating base papers, coating papers and various liquids
- examination of water absorption of base papers consisting of coating colour

Decor papers and laminating papers

- examinations at decor papers and laminating papers, impregnating resin absorption and testing

Label papers

- label papers (all preliminary and intermediate stages), analysis of printed labels, verification of embossing, alkaline penetration, detachment with caustic soda lye up to 90 °C.

And further examinations of special papers, felts, cigarette papers, filter papers, thin wood plates, cardboard, textiles, plastic films, etc. with liquids like coating colours, printing colours, varnishes, oils, starch, solvents, acids, impregnating resins, adhesives etc.