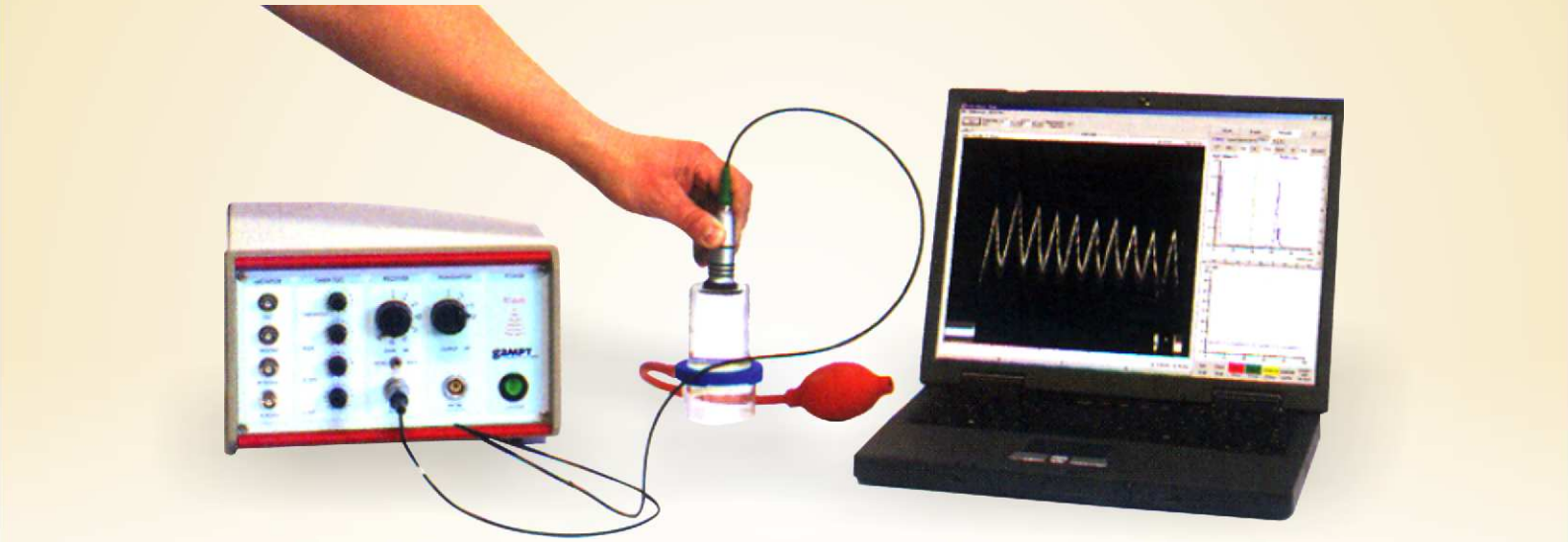
Scientech

Ultrasonic T-M mode

Scientech 12E



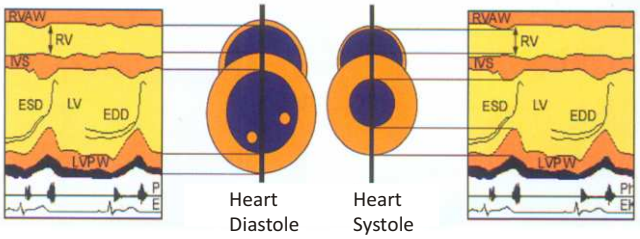
Using a simple heart model the wall motion is recorded by means of the ultrasonic time-motion method (M - mode) . From the M-mode recording the frequency and the heart volume (HZV) are determine.

Basics

In echo-cardiography a special ultrasonic method is applied for the investigation of heart movements. The time-motion mode called TM-mode, is indicate particulaly as one dimensional technique but shows still two dimention : One spatial dimention (superimposed interfaces or structures) and one temporal dimention (changes of the structures in the systole and diastole) . By the TM-mode motion of heart stracture (cardia wall, seotum or cadiac wall and vessel valve) are display the measurement of the end diastolic and end ststolic ventrical diameter (distance of the cardiac walls) the corresponding heart volume EDV (end diastolic volume) and ESV (end systolic volume) are determine .

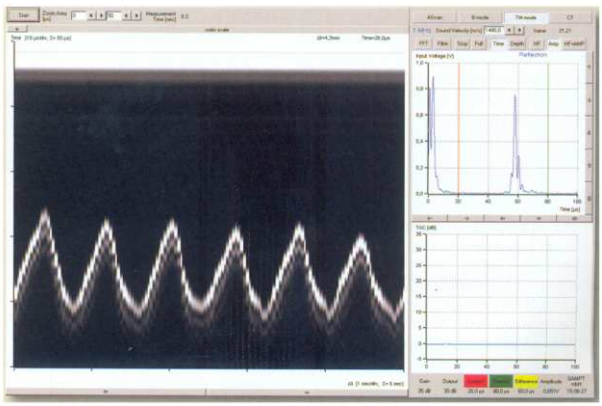
HZV=(EDS-EDV)* HF

HF= Heart Frequency



Procedure

After filling the heart model with water the probe shall be fixed to a tripod in such a way that the echo of the membrane appears at a sufficient distance to the impingement surface. Since in water the attenuation of the ultrasonic wave is negligible the measurements can be performed without use of the TGC the software parameter sound velocity is adjusted to water (1480 m/s). The rubber membrane simulates the heart wall motion. The motion of membrane is recorded in M-mode and can be printed.



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