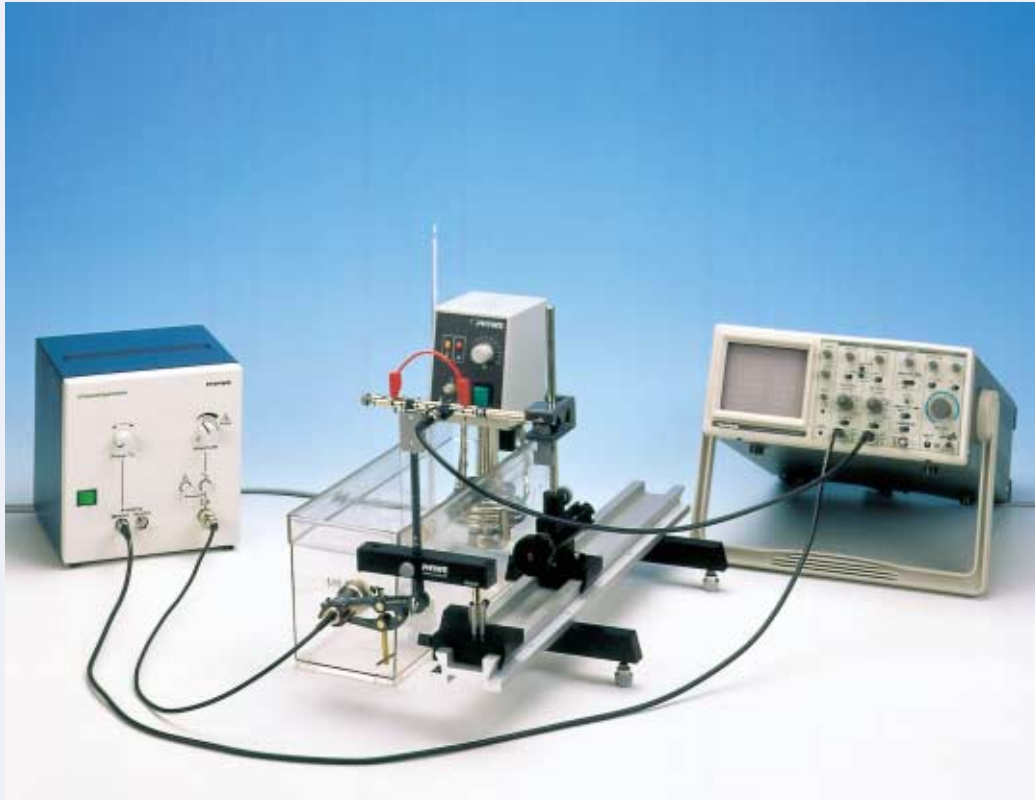


## Temperature dependence of the Velocity of sound in liquids 1.5.12-00



### What you can learn about ...

- Wavelength
- Frequency
- Velocity of sound in liquids
- Compressibility
- Density
- Ultrasonics
- Piezoelectric effect
- Piezoelectric ultrasonic transducer

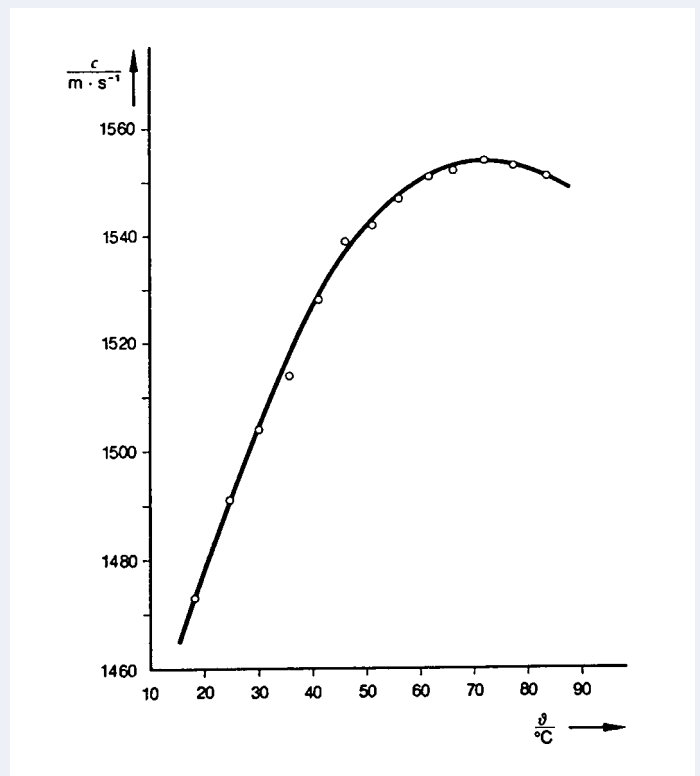
### Principle:

Sound waves are radiated into a liquid by an ultrasonic transmitter and detected with a piezoelectric transducer. The wavelength of the sound is found by comparing the phase of the detector signal for different sound paths and, when the frequency is known, the velocity of sound as a function of the temperature of the liquid is determined.

### What you need:

Ultrasonic pickup	11744.00	1
Ultrasonic generator	11744.93	1
Sliding device, horizontal	08713.00	1
Optical profile bench $l = 60$ cm	08283.00	1
Base f. opt. profile-bench, adjust.	08284.00	2
Slide mount f. opt. pr.-bench, $h = 30$ mm	08286.01	2
Swinging arm	08256.00	1
Insulating support	07924.00	1
Immersion thermostat A100	46994.93	1
Accessory set for A100	46994.02	1
Bath for thermostat, Makrolon	08487.02	1
Lab thermometer, $-10..+100^{\circ}\text{C}$	38056.00	1
Oscilloscope, 30 MHz, 2 channels	11459.95	1
Support rod, $l = 100$ mm	02020.00	2
Right angle clamp -PASS-	02040.55	2
Universal clamp with joint	37716.00	1
Screened cable, BNC, $l = 750$ mm	07542.11	2
Adapter, BNC-socket/4 mm plug pair	07542.27	1
Glycerol, 250 ml	30084.25	1
Water, distilled, 5 l	31246.81	1
Connecting cord, $l = 100$ mm, red	07359.01	1

**Complete Equipment Set, Manual on CD-ROM included**  
**Temperature dependence of the Velocity of sound in liquids**  
**P2151200**



Velocity of sound in water as a function of the temperature.

### Tasks:

The wavelength is found from the phase position of the sound pickup signal relative to the generator signal as a function of the sound path and the velocity of the sound is de-

termined when the ultrasonic frequency is known. The measurement is made for water and glycerol as the temperatures of the liquids are changed step-by-step.