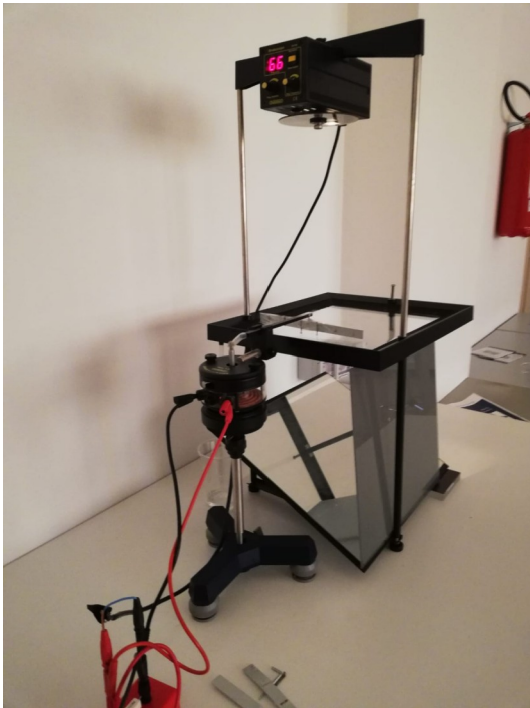


## DESCRIPTION OF THE TOOL

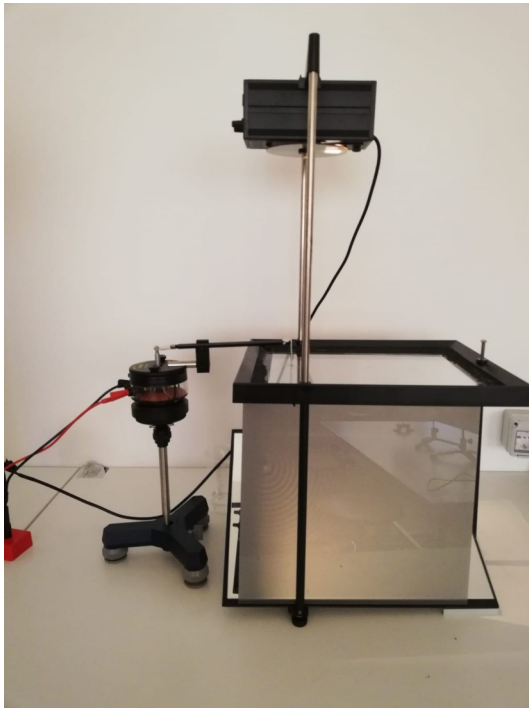
The **ondoscope** also called **ripple tank** is a tool that allows you to study wave phenomena. It is made up of a tray with a transparent plexiglass bottom, raised above the metal-clad control counter. Water is poured into it, then a metal tip or rod connected to a vibrator is placed on the surface of the liquid, powered by a 5V DC generator. Instead the lamp and the obturator (which rotates around the tray), are powered at 220V in alternating power. When the vibrator is operating, it oscillates because of the mass outside the center of gravity and produces waves on the surface.



## 1<sup>st</sup> EXPERIENCE

On the pan there is a stroboscope, inside which there is a fan that interrupts the beam of light allowing the visualization of the waves. By inserting an appropriate striker into the vibrator which ends with a metal tip, we can observe the formation of **circular wave fronts**. You can measure the wavelength with a ruler.

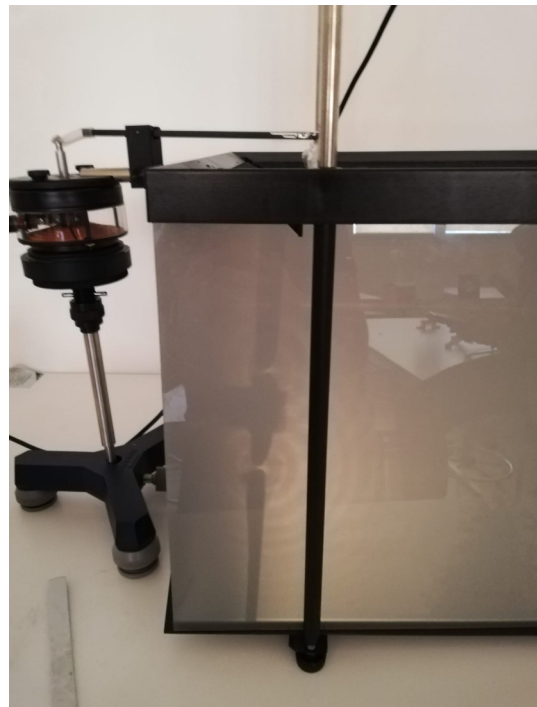
By varying the frequency, we then see how the wavelength varies, measuring the distance between two consecutive maximums.



## 2<sup>nd</sup> EXPERIENCE

By inserting two strikers with metal points into the vibrator, they will generate circular waves in phase with each other (i.e. having the same period, same amplitude and the same phase), which waves will cause the phenomenon of **interference** to occur.

in this case we can observe fringes of destructive and constructive interference. Along the nodal lines of the first, the water is still; while along the lines of constructive interference, the maximums and minima alternate over time.



### 3<sup>rd</sup> EXPERIENCE

Tendency of the wave fronts to be straight.

**DIFFRACTION:** changing the shape of the wave front when it meets a slit. Therefore, given a 1cm slit, the wave front is circular; if instead the slit measures 3 cm, we can observe a wave front that is no longer circular, but tends to become straight. When the slit is 6 cm, the wave fronts will be parallel to each other. From this experiment it emerges how, on increasing the size of the slit, the tendency of the wave fronts to be straightened increases too.

