## Conductivity sensor max. depth 11 000 m.





Conductivity sensor / 7-pole-cell	
Pressure resistance	12 000 dbar
Measuring range	standard: 0 – 70 mS / cm (0 – 7,0 S/m) (other ranges on request)
Accuracy	+/- 0,002 mS/cm
Response time	150 ms
Principle	7-pole electrode measuring cell
Material	Titanium, 2K polyurethan
Used for	all probes

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## The measuring principle:

All models of conductivity sensors use 7 electrodes in a cylindrical arrangement. The cell is always constructed symmetrically as depicted in the following sectional drawing.



The central electrode D is used to impress alternating current of 500 Hz to 1 kHz frequency (square wave) into the water volume while both outside electrodes A and G are the current return leads, which are held on a constant potential. There exist two pairs of sensing electrodes (B, C and E, F), which measure the voltage drop across them. The electrical field in a homogeneous medium is symmetrically divided on both half-cells. The constant potential on the outer electrodes limits the electrical field to the inside of the cylinder and prevents any influence from boundary conditions outside the cell. The conductivity electronic is mainly an automatic closed AC control loop which holds the voltage drop across the sensing electrodes on a constant level, while the current is proportional to the actual conductivity value.

## Conductivity sensor for profiling

The conductivity cell consists of a quartz glass cylinder with 7 platinum coated electrodes. Because of the small inner diameter of 8 mm the cell needs a minimum vertical flow velocity to obtain full accuracy. The cell is vulcanised with rubber in a mould. The cleaning procedure must be carried out very carefully hence the glass cylinder is sensitive against shock and impact.



small conductivity sensor



large conductivity sensor



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