Ferroperm Piezoceramics
Your Partner in Smart Solutions

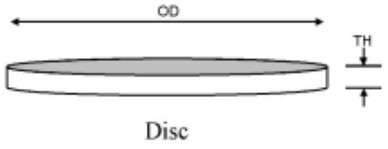
Frequently asked questions (FAQs)

Question:
What is the terminology for specifying a piezoceramic part?
What is the difference between rings and tubes?

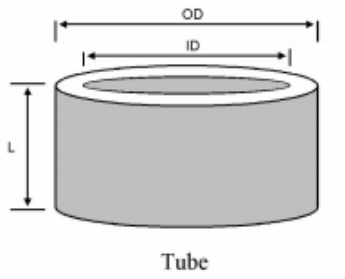
Answer:
Over the years the industrial suppliers have agreed on a common terminology for their product types. Most of these have been formalised in various standardisation documents from IEC, CENELEC, IEEE etc.

The below table shows the difference between the 4 main geometric categories. The most important difference in this is the location of the electrodes. A ring for example has electrodes on top and bottom, while a tube has electrodes on OD and ID.

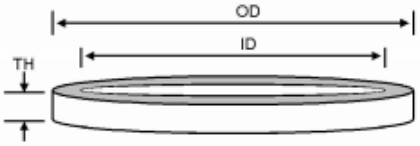
If a part is a ring or a tube therefore <u>does not have anything to do with dimensions, but with location of the electrodes.</u>



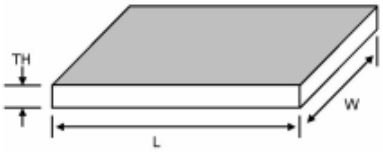
Disc



Tube



Ring



Plate

= *Electrode*

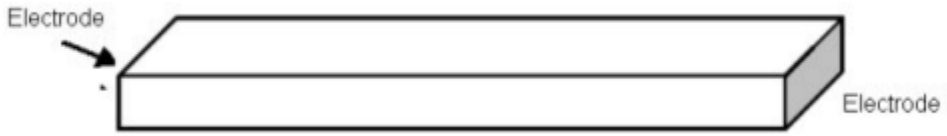
Specification and terminology for normally polarised piezoceramics parts.

Dimensions for normal parts should be specified in the following way:

- Discs: OD x TH.
- Plates L x W x TH.
- Rings OD x ID x TH.
- Tubes OD x ID x L.

Where the thickness in discs, rings and plates always is the distance between the electrodes.

Example
A plate, which has the following characteristics:



will therefore specified as 5x2x20 mm and not 20x5x2 mm as it is sometimes seen. The reason for this is that the distance between the electrode is 20 mm, and is therefore the "real" thickness of the plate.

Specification and terminology for shear-polarised parts.

Shear plates
The nomenclature for shear plates is always to give the dimension in the polarisation direction first (3), then the dimension in the (2)-direction, and finally the direction (1) of applied/generated field (distance between electrodes).

Example: A 1 mm thick plate that is 30 mm wide, poled along a 15 mm long side and then electroded on the large faces, will thus be called: 15x30x1 mm.

Shear tubes
A shear tube is polarised initially as a ring (from bottom to top electrodes). These electrodes are then removed and new "tube electrodes" on OD and ID are applied. The nomenclature is therefore the same as with normal tubes: OD x ID X L

Shear rings
A shear ring is polarised initially as a tube (from ID to OD electrodes). These electrodes are then removed and new "ring electrode" on top and bottom are applied. The nomenclature is therefore the same as with normal rings: OD x ID X TH