

PIEZOCERAMIC COMPONENTS

Dimensions

Geometric manufacturing limits

The **maximum dimensions** of bulk ceramic components are determined by the equipment and instruments available.

Max. diameter **OD 80 mm**

Max. length / height **L 70 mm**

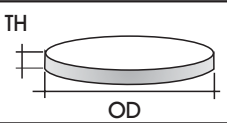
Max. thickness (polarization) **H 20 mm**

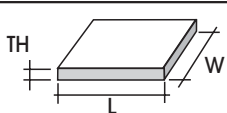
The **minimum dimensions** are determined by the physical and processing limits, e. g. the minimum thickness is determined by the mechanical strength of the ceramic during machining.

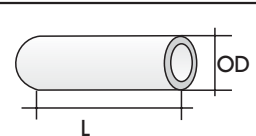
Min. diameter **OD 1.50 mm**

Min. thickness **TH 0.15 mm**

The geometric manufacturing limits are shown in the following tables for different combinations of dimensions:

	Plate / Rod	
	TH (mm)	OD (mm)
max. thickness	30	10 to 80
	20	5 to 80
	10	2 to 5
min. thickness	0.15	2 to 20
	0.3	2 to 60
	0.5	2 to 80

	Plate / Block		
	TH (mm)	L (mm)	W (mm)
max. thickness	40	1 to 80	1 to 20
	40	1 to 60	1 to 60
min. thickness	0.15	1 to 20	1 to 20
	0.3	1 to 80	1 to 30
	0.5	1 to 60	1 to 60

	Tube	
	OD (mm)	ID (mm)
max. diameter	< 78	< 70
min. diameter	> 2	> 0.8
length	1 to 70 mm	

Preferred Dimensions

Within the manufacturing limits, we recommend the use of components with preferred dimensions. These products can be delivered in very short time and with no special tooling costs, thanks to the standard semi-finished products, assembly devices, such as sputter masks, screen printing tools, adhesive molds etc., which we have on hand.

Preferred dimensions: disks by size

Thickness TH / mm	OD / mm									
	3	5	10	16	20	25	35	40	45	50
0.20										
0.25										
0.30										
0.40										
0.50										
0.75										
1.00										
2.00										
3.00										
4.00										
5.00										
10.00										
20.00										

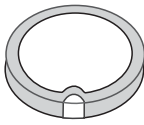
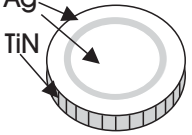
Electrode system options:
fired silver (thick film)
or
thin film (CuNi, Au, etc.)

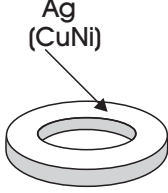
Preferred dimensions: disks by frequency (thickness oscillation)


Frequency in MHz	OD / mm									
	3	5	10	16	20	25	35	40	45	50
10.00										
5.00										
4.00										
3.00										
2.00										
1.00										
0.75										
0.50										
0.40										
0.25										
0.20										

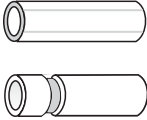
Electrode system options:
fired silver (thick film)
or
thin film (CuNi, Au, etc.)

Other geometries are available on request.

Preferred dimensions: disks with special electrodes			
Design	Diameter OD / mm	Thickness TH / mm	Electrode system options
Wrapped electrode 	10	0.5 1.0 2.0	fired silver
	16		
	20		
	25		
	40		
Special design atomizer disk 	10	1 MHz	electrode layer = silver function layer = TiN
	16	2.5 MHz and 1.7 MHz	
	20		
	25		

Preferred dimensions: rings				
Design	Outside diameter OD / mm	Inside diameter ID / mm	Thickness TH / mm	Electrode system options
Ag (CuNi) 	3	0.85	0.5	CuNi / Ag
	10	2.7	0.5; 1.0; 2.0	fired silver or CuNi
	10*	4.3*		
	10*	5*		
	12.7	5.2*		
	25	16*		
	38	13*	5.0; 6.0	
	50	19.7*	5.0; 6.0; 9.5	
* Tolerances as sintered, see table p. 29				

Preferred dimensions: tubes				
Design	Outside diameter OD / mm	Inside diameter ID / mm	Length L / mm	Electrode system options
	76	60	50	Inner surface: fired silver
	40	38	40	
	20	18	30	
	10	9	30	Outer surface: fired silver or CuNi (thin film)
	10	8	30	
	6.35	5.35	30	
	3.2	2.2	30	
	2.2	1	20	

Preferred dimensions: tubes				
Design	Outside diameter OD / mm	Inside diameter ID / mm	Length L / mm	Electrode system options
	20	18	30	Inner surface: fired silver
	10	9	30	
	10	8	30	
	6.35	5.35	30	Outer surface: fired silver or CuNi (thin film)
	3.2	2.2	30	
2.2	1	20		

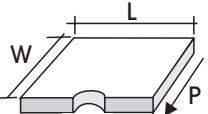
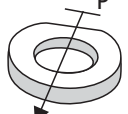
Preferred dimensions: plates

Thickness	L x W / mm ²									
	4x4	5x5	10x10	15x15	20x20	25x20	25x25	50x30	50x50	70x25
mm										
0.20										
0.25										
0.30										
0.40										
0.50										
0.75										
1.00										
2.00										
3.00										
4.00										
5.00										
10.00										
20.00										

Electrode system options:

fired silver or thin film layer (CuNi or Au)

A combination of extreme values is not always possible!
The lateral dimensions are manufactured by using a diamond sawing procedure.

Preferred dimensions; rectangular shear plates and shear rings				
Design	Width W / mm	Length L / mm	Thickness TH / mm	Electrode system options
Shear plate 	3	3	0.5 0.75 1.0	CuNi or gold (thin film)
	4	4		
	5	5		
	10	10		
	16	16		
		(20; 30; 40)		
Shear ring 	Outside diameter OD/mm	Inside diameter ID/mm	Thickness TH / mm	
	38	19	6	
	36	19	6	