

Ceramics Plates

Alumina 96 / Steatite / Machinable Ceramics

Alumina 96: Excels in abrasion resistance, insulation and heat resistance.

Steatite: Excels in insulation and high frequency characteristic.

Machinable Ceramics: Excels in insulation, heat insulation and machinability. Can be machined into complex shapes or finished with precision.

Ceramics Plates

RoHS10

Properties P.3071

Part Number	Material	Finish Precision	Color	Operating Ambient Temperature
CEA	Alumina 96	Standard Class	White	Ambient Temperature: ~1,300°C
CEAV	Alumina 96	Precision Class		
CCES	Steatite	Standard Class	White	Ambient Temperature: ~1,000°C
CCESV	Steatite	Precision Class		
CEM	Machinable Ceramics	Standard Class	Natural Color	Ambient Temperature: ~1,000°C

Material is alumina 99.5 for Pre-Drilled Types T = 2 or 2.5 and T = 1.

Standard Type

Standard Grade
CEA
CCES
CEM

Pre-Drilled Type

Precision Grade
CEAV
CCESV

Standard Type

Part Number Type	1 mm Increment		T
	A	B	
CEA CEM	10-200	10-100	1 2
CEAV	10-100	10-100	2.5
CCES CCESV	10-70	10-70	3 5

Precision Standards

Item	CEA, CCES, CEM	CEAV, CCESV
Thickness Parallelism (per 100 mm)	0.1	0.05
Flatness	T=1	0.1
(per 100 mm)	T=2-5	0.1

Drilling Details

Bolt Nominal Dia.	3	4	5	6	8	10
d	3.5	4.5	5.5	6.5	9	11

Pre-Drilled Type

Part Number Type	Nominal	1 mm Increment		T	0.5 mm Increment		Select Mounting Holes N (Through Hole)
		A	B		F	G	
CEA CEM	2H	10-200	10-100	1	9-191	5-95 (2H)	3
		2.5	9-91	9-91 (4H)	4		
CEAV	4H	10-100	10-100	2.5	9-91	5-65 (2H)	6
		3	9-61	9-61 (4H)	8		
CCES CCESV	4H	10-70	10-70	3	9-61	9-61 (4H)	10
		5					

For F dimension, $d+5 \leq F \leq A-d-5$ is required.
For G Dimension: For 2H, $d/2+2.5 \leq G \leq B-d/2-2.5$; for 4H, $d+5 \leq G \leq B-d-5$.

Part Number Example

Standard Type: Part Number - A - B - T
CEA - 60 - 55 - 2

Pre-Drilled Type: Part Number - A - B - T - F - G - Bolt Nominal Diameter
CEA4H - 80 - 80 - 1 - F55 - G55 - N6

Part Number Alterations

Part Number - A - B - T - F - G - Bolt Nominal Diameter - (XC / YC)
CEA2H - 80 - 80 - 1 - F30 - G40 - N6 - XC15

Alterations	Hole Position from Left	Hole Position from Bottom
Code	XC	YC
Spec.	XC = 1 mm Increment 5 ≤ XC ≤ 186 (CEA / CEM) 5 ≤ XC ≤ 86 (CEAV) 5 ≤ XC ≤ 56 (CCES / CCESV) $d(d_1)/2+2.5 \leq XC \leq A-F-d(d_1)/2-2.5$	Specify in YC = 1 mm Increment Not available for 2H 5 ≤ YC ≤ 86 (CEA / CEAV / CEM) 5 ≤ YC ≤ 56 (CCES / CCESV) $d(d_1)/2+2.5 \leq YC \leq B-G-d(d_1)/2-2.5$

Part Number	T	A	Available Types				
			CEA		CEAV		
CEA CEAV CEM	1	10-50	•	•	•	•	
		51-100	•	•	•	•	
		101-150	•	•	•	•	
		151-200	•	•	•	•	
		10-50	•	•	•	•	
		51-100	•	•	•	•	
	2	101-150	•	•	•	•	
		151-200	•	•	•	•	
		2.5	10-50	•	•	•	•
			51-100	•	•	•	•
			101-150	•	•	•	•
			151-200	•	•	•	•
10-50	•		•	•	•		
51-100	•		•	•	•		

Part Number	T	A	Available Types			
			CCES		CCESV	
CCES CCESV	3	10-35	•	•	•	•
		36-70	•	•	•	•
	5	10-35	•	•	•	•
		36-70	•	•	•	•

Ceramics Plates

Circular

Ceramics Circular Plates

RoHS10

Properties P.3071

Part Number	Material	Finish Precision
PCEA	Alumina 96	Standard Class
PCEAV	Alumina 96	Precision Class (Upper-Lower Surface Milling)
PCCES	Steatite	Standard Class
PCCESV	Steatite	Precision Class (Upper-Lower Surface Milling)

Accuracy Standards

Item	PCEA PCCES	PCEAV, PCCESV
Thickness Parallelism (D=50)	0.1	0.05
Flatness (D=50)	T=1	0.1
	T=2-5	0.1

Standard Type

Pre-Drilled Type

Standard Grade
PCEA
PCCES

T=0.1

Precision Grade
PCEAV
PCCESV

T=0.05

Standard Type

Part Number Type	5 mm Increment D	1 mm Increment V	T	
			PCEA PCEAV	PCCES PCCESV
PCEA	20-80	0-70 (V≤D-10)	1	3
PCEAV	20-50		2	
PCCES	20-50*		5	
PCCESV	20-50*			

Hole Machining

Bolt Nominal Dia.	3	4	5	6	8	10
d	3.5	4.5	5.5	6.5	9	11

Dimension D for PCCES and PCCESV is in 10 mm increment.
When D≥55, T=1 and 2 are not selectable. (Only T=5 is selectable.)

Pre-Drilled Type

Part Number Type	Nominal	5 mm Increment D	1 mm Increment V	T		1 mm Increment P.C.D	Select Mounting Holes N (Through Hole)
				PCEA PCEAV	PCCES PCCESV		
PCEA PCEAV PCCES PCCESV	2H 3H 4H	20-80	0-70 (V≤D-10)	1	3	10-40	3
		20-50		2			4
		20-50*		5			5
		20-50*					6
		20-50*					10

Dimension D for PCCES and PCCESV is in 10 mm increment.
When D≥55, T=1 and 2 are not selectable. (Only T=5 is selectable.)

Part Number Example

Standard Type: Part Number - D - V - T
PCEA - 35 - 25 - 2

Pre-Drilled Type: Part Number - D - V - T - P.C.D - Bolt Nominal Diameter
PCEA2H - 50 - 10 - 5 - 35 - N4

Standard Type

Part Number - D - V - T
PCEA - 35 - 25 - 2

Pre-Drilled Type

Part Number - D - V - T - P.C.D - Bolt Nominal Diameter
PCEA2H - 50 - 10 - 5 - 35 - N4

Part Number Alterations

Part Number - D - V - T - (DC / PN)
PCEA - 50 - 20 - 5 - DC49

Alterations	Outer Diameter Dimension	Through Hole Tolerance
Code	DC	PN
Spec.	Changes the D dimension. DC=1mm Increment DC<D It is required the distance between DC and V to be more than 5 mm. 15≤DC≤79 Ex.) Changes D dimension 50 to 47. Ordering Code: DC47	Alters Through Hole Tolerance. ±0.2→±0.05 Ex.) Alters tolerance in N4 to ±0.05 Ordering Code: N4-PN

Part Number	T	D	V	Available Types				
				0	1-20	21-40	41-60	61-70
PCEA PCEAV	1	20	20	•	•	•	•	•
			25	•	•	•	•	•
			30	•	•	•	•	•
			35	•	•	•	•	•
			40	•	•	•	•	•
	5	20	•	•	•	•	•	
		25	•	•	•	•	•	
		30	•	•	•	•	•	
		35	•	•	•	•	•	
		40	•	•	•	•	•	
PCCES PCCESV	3	20	20	•	•	•	•	•
			30	•	•	•	•	•
			40	•	•	•	•	•
			50	•	•	•	•	•
			60	•	•	•	•	•
	5	20	•	•	•	•	•	
		30	•	•	•	•	•	
		40	•	•	•	•	•	
		50	•	•	•	•	•	
		60	•	•	•	•	•	