

Properties of raw material used for metallized housing

S/N	Item	Test condition	Unit	Parameter
1	Volume density		g/cm ³	≥3.60
2	Gas tightness		Pa.m ³ /S	≤10 ⁻¹¹
3	Breaking strength		Mpa	≥280
4	Coefficient of linear expansion	20°C~500°C	x 10 ⁻⁶ /°C	6.5~7.5
		20°C~800°C		6.5~8.0
5	Dielectric constant	1MHz、20°C		9~10
6	Dielectric loss angle tangent	1MHz、20°C	x 10 ⁻⁴	≤4
7	Volume resistivity	100°C	Ω.cm	≥10 ¹³
		300°C		≥10 ¹⁰
		500°C		≥10 ⁸
8	Breakdown strength	D.C	Kv/MM	≥18
9	Chemical stability	1:9 HCl	mg/cm ²	≤7.0
		10% NaOH		≤0.2

Specification、 dimension and tolerance criteria **Unit: mm**

Basic outer diameter	Tolerance
≥20~30	0.52
>30~40	0.64
>40~50	0.80
>50~65	1.00
>65~80	1.24
>80~100	1.52
>100~120	1.88
>120~140	2.20
>140~160	2.60
>160~180	2.80
>180~200	3.20
>200~220	3.60

Flatness tolerance criteria of metallized housing **Unit: mm**

Basic outer diameter	Tolerance
≥20~40	0.12
>40~63	0.14
>63~100	0.16
>100~160	0.18
>160~220	0.22

Roundness tolerance criteria of metallized housing		Unit: mm
Basic outer diameter		Tolerance
$\geq 20\sim 30$		0.16
$> 20\sim 50$		0.18
$> 50\sim 80$		0.22
$> 80\sim 120$		0.26
$> 120\sim 180$		0.94
$> 180\sim 220$		1.40

Verticality & flatness criteria of metallized housing		
$\geq 20\sim 40$		0.16
$> 40\sim 63$		0.18
$> 63\sim 100$		0.22
$> 100\sim 160$		0.26
$> 160\sim 220$		0.30

4.3 Visual & surface defect criteria

4.3.1 Jointing section of metallized housing

- Homogeneous texture, no color difference, no crack, no bumps on surface
- Surface roughness should be $0.8\mu\text{m}\sim 1.6\mu\text{m}$
- Other visual defects should be comply to below attached sheet shown, the distance at defects should be less than 10mm, Unit: mm

OD	Height	Spot	Pores		Chipping		Unit(pcs)
		Diameter	Diameter	Depth	Plane, jointing side	Corner	
20~100	≤ 4	≤ 0.3	≤ 0.4	≤ 0.5	≤ 0.5	≤ 0.1	≤ 2
	$> 4\sim 6.3$	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.1	≤ 2
	> 6.3	≤ 0.5	≤ 0.6	≤ 0.5	≤ 0.8	≤ 0.15	≤ 2
100~220	≤ 4	≤ 0.4	≤ 0.4	≤ 0.5	≤ 0.5	≤ 0.1	≤ 2
	$> 4\sim 6.3$	≤ 0.5	≤ 0.6	≤ 0.5	≤ 0.8	≤ 0.1	≤ 2
	$> 6.3\sim 10$	≤ 0.5	≤ 0.6	≤ 0.5	≤ 0.8	≤ 0.15	≤ 2
	> 10	≤ 0.5	≤ 0.8	≤ 0.5	≤ 1.0	≤ 0.20	≤ 2

4.3.2 Non-jointing section of metallized housing

- Homogeneous texture, no color difference, no crack, no bumps, no flaky shadow, no obvious black/yellow spots on surface
- Other visual defects should be comply to below attached sheet shown, the distance at defects should be less than 30mm, Unit: mm

OD	Height	Pin		Diameter of air bubble	Diameter of bump &	Pores		Unit(pcs)
		Diameter	Depth			Diameter	Depth	
20~100	$> 10\sim 25$	≤ 2.0	≤ 0.5	≤ 1.0	≤ 0.5	≤ 0.8	≤ 0.5	≤ 3
	$> 25\sim 63$	≤ 2.0	≤ 0.5	≤ 1.0	≤ 0.5	≤ 0.8	≤ 0.5	≤ 3
	> 63	≤ 2.0	≤ 0.5	≤ 1.0	≤ 0.8	≤ 0.8	≤ 0.5	≤ 3
100~220	≤ 16	≤ 2.0	≤ 0.5	≤ 1.0	≤ 0.5	≤ 0.8	≤ 0.5	≤ 3
	$> 16\sim 40$	≤ 2.0	≤ 0.5	≤ 1.0	≤ 0.5	≤ 0.8	≤ 0.5	≤ 3
	$> 40\sim 100$	≤ 2.0	≤ 0.5	≤ 1.0	≤ 0.8	≤ 0.8	≤ 0.5	≤ 3
	$> 100\sim 220$	≤ 2.0	≤ 0.5	≤ 1.0	≤ 0.8	≤ 0.8	≤ 0.85	≤ 3

4.4 Appearance quality of metallization layer and nickle coating

4.4.1: The metallization layer should be dense,well-distributed,consecutive and flat.

4.4.2: The electro nickle plate should be dense,well-distributed,consecutive and flat.There is no crack, no layering,no peeling after

4.5 Sealing tensile strength and gas tightness

4.5.1 Sealing tensile strength

Average sealing tensile strength: $\sigma_2 \geq 90\text{MPa}$ for standard parts; it should be over than $\sigma_2 \geq 120\text{MPa}$ with three-poin tes

The sealing tensile strength of any point or any part should be over than 90% of σ_2

4.5.2 Gas tightness

The leakage ratio: $Q_{k \leq t} \times 10^{-11} \text{ pa} \cdot \text{m}^3/\text{s}$

4.6 Glaze visual quality

4.6.1: It should be transparent、shinning、pure white、same color;No crack and pores on glaze surface.

4.6.2: The color, shinning surfaceshould be maintained after fired of metallization;

4.6.3: The impurity and air bubble inside of glaze layer should be conform to below attached sheet stated: Unit: mm

Outer diameter	Impurity (spot, contamination,pin)		Air bubble	
	Diameter	Qty(pcs)	Diameter	Qty
$\geq 20-40$	≤ 0.5	≤ 1	$> 0.1 \sim 0.5$	≤ 1
$> 40-100$	$> 0.1 \sim 1.0$	≤ 1	$> 0.5 \sim 1.0$	≤ 1
$> 100-160$	$> 0.1 \sim 1.5$	≤ 2	$> 1.0 \sim 1.5$	≤ 2
> 160	$> 0.1 \sim 1.5$	≤ 2	$> 1.0 \sim 1.5$	≤ 2

Remark: The diameter smaller than 0.1mm of impurity can be (spot,contamination,pin) negligible, the diameter bigger than 1.5mm don't allowed.

5.Inspection criteria

5.2 The fluorescence testing should be performed for all products (fully inspection), do 100% inspection according to following attached sheet to screen out the NG item.

S/N	Item	Testing content, refer to	Testing method, refer to
1	Dimension, Tolerance	4.2	6.1
2	Visual defect	4.3	6.11
3	Metallization, coating quality	4.4	6.12
4	Appearance	4.6	6.15

7 Packaging, lable, storage and transporation

7.1 Packaging

Plastic bag packed to be vacuum、sealed, keep the parts not moved inside of cardboard carton, then fill with protective stuffs.

Below listed protective stuffs may be used:

a) Inside of carton: air bubble, PE foam;

b)Outer package: wooden carton, plastic carton, cardboard carton and so on

c)Stuffs: soft paper, PE foam and so on