



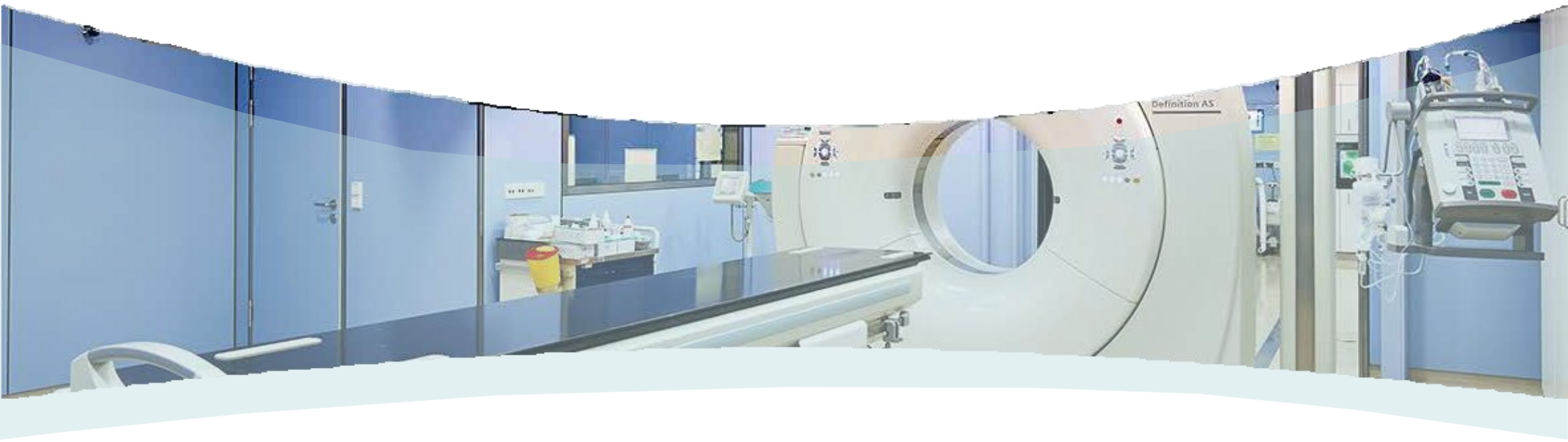
# **TECHNOCRATICS (Pvt) Ltd.**

ISO 9001:2015 Certified Company  
NTN # A351529 GST # 3277876261645



## **PRODUCT BROCHURES**





# CONTENTS

|                       |   |           |
|-----------------------|---|-----------|
| <b>PART 01</b><br>▶▶▶ | <b>MRI Room One-stop Solution Materials</b> .....   | <b>03</b> |
| <b>PART 02</b><br>▶▶▶ | <b>X-ray Room One-stop Solution Materials</b> ..... | <b>09</b> |
| <b>PART 03</b><br>▶▶▶ | <b>RF Room One-stop Solution Materials</b> .....    | <b>14</b> |

# PART 01



## MRI Room One-stop Solution Materials

- COPPER FOIL
- MRI WINDOW
- MRI DOOR
- EMI FILTER
- HONEYCOMB VENT
- KNITTED WIRE MESH
- COPPER MESH
- COPPER FIGURE GASKET
- COPPER WOOL
- COPPER TAPE
- WAVEGUIDE
- LED LIGHT PANEL
- Blue & Sky MRI Soft Film Ceiling Lights
- TITANIUM TOOLS

## ▪Copper foil

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**Copper** is a great material of shielded signal. Widely used for rf cage /MRI room installations, building roof to protect out of oxidization.

There are two main installation ways of **RF cage** building.

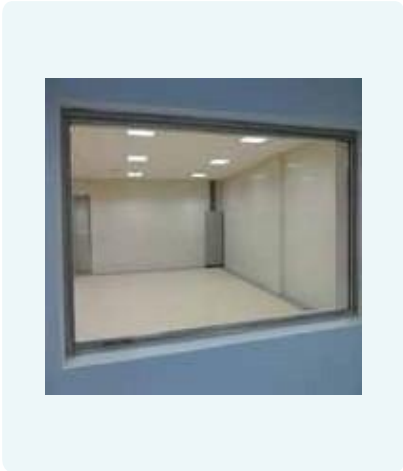
First option :

**ED copper foil** 1320mm -basic step- Make Wooden Panel +Put copper foil Covered wooden frame +assemle copper foil wooden panel together.

Second option :

**RA copper foil** 600mm- basic step - Make bending edges of copper sheet + Fix sheets on wood walls + welding edges of 2 pcs sheets together.

| Quality Items<br>ED Copper Foil                         | General Technical Terms |                |                 |                |                |            |            |            |  |  |
|---|-------------------------|----------------|-----------------|----------------|----------------|------------|------------|------------|--|--|
|   | 2oz<br>(70um)           | 3oz<br>(105um) | 4oz<br>(0.14mm) | 5oz<br>(175um) | 6oz<br>(210um) |            |            |            |  |  |
| Area Weight g/m2  | 585±25                  | 915±45         | 1220±60         | 1525±75        | 1830±90        |            |            |            |  |  |
| Leakage Points<br>points/m2                             | No                      |                |                 |                |                |            |            |            |  |  |
| Quality of electrical<br>resistivity                    |                         |                |                 |                |                |            |            |            |  |  |
| $\Omega \cdot g / m^2$                                  |                         |                |                 |                |                |            |            |            |  |  |
| Anti-Oxidization<br>Performance<br>160 centigrade/30min | No Oxidization          |                |                 |                |                |            |            |            |  |  |
| Width Tolerance<br>mm                                   |                         |                |                 |                |                | 1290.0±1.0 | 1320.0±1.0 | 1370.0±1.0 |  |  |



## • MRI Window

MRI window is the main part in MRI room, to view the inside of MRI room from control room. MRI window is made of none magnetic material frame and easily installed.

| Leakage Points |   |
|----------------|---|
| Product name   | MRI Shielding Window                                    |
| Standard size  | 1.2*0.9 meter/customized size                           |
| Material       | Copper + Shielding wire mesh (40mesh) + Glass (5mm+8mm) |
| Frame          | With frame  |
| Frame material | Wood/Al Alloy+ Copper foil                              |
| Packing        | Wooden packing or customized                            |



## • MRI Door

We can offer customized size RF shielding door which can shield performance well. Manufacturing MRI Door with professional, scaled and standardized will guarantee the consistency and reliability of quality performance of the product. Technical door connection hinge is not only attractive, but also stable and durable. Door handles and hardware locks are fully furnished. The standard size is MRI Door is 1200mm x 2100mm, can also accept special size customized service.

Customized directions, like left and outward, left and inward, right and inward, right and outward. Below picture is for your reference.

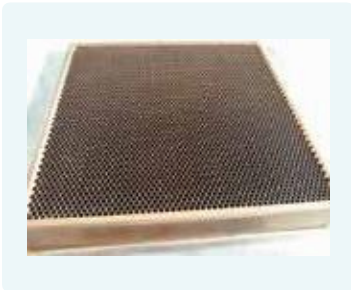
| Product Item                             | MRI RF Door                          |        |
|--|--------------------------------------|--------|
| Inner Size Specification (without frame) | 1200mm(W)×2100mm (H)                 |        |
| Material                                 | Copper Foil and other materials      |        |
| Shielding Frequency                      | Magnetic Field(10MHz)                | ≥100dB |
|  | Electric Field(10-30MHz)             | ≥100dB |
|  | Plane Wave(30-100MHz)                | ≥100dB |
| Packing                                  | In wooden case (2410mm*1500mm*400mm) |        |
| Net Weight                               | 120kg (±5kg)                         |        |
| Gross Weight                             | 200kg (±5kg)                         |        |



## ▪ EMI Filter

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EMI Filters are widely used in applications such as Appliances, Military/Aerospace systems & subsystems, Energy Management Systems, Computers, Factory Automation Equipment, Industrial Equipment, Medical Imaging/Diagnostic/Patient Devices, Exercise Equipment, Automotive Battery Charger, MRI Rooms, Test Chambers/Shielded Rooms and many others.



## ▪ Honeycomb Vent

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Honeycomb vents use the principle of waveguide high-pass filtering to shield the electromagnetic wave, that is, the honeycomb vent passes the electromagnetic wave higher than the cut-off frequency and attenuates the electromagnetic wave lower than the cut-off frequency and the attenuation (shielding efficiency) is proportional to the length of the waveguide. From the processing characteristics of waveguide Windows, the regular hexagonal honeycomb vents have the most mature manufacturing technology and the most extensive application in engineering.



## ▪ Knitted Wire Mesh

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Knitted wire mesh gaskets provide a cost effective solution to high shielding performance applications in the magnetic and electrical fields including EMP. Gaskets can be either all metal knitted mesh or knitted metal mesh over an elastomeric core to allow for recovery after compression.

There are many choices of wires including: Monel, Tin Plated Copper Clad Steel (TCS) Stainless Steel & Aluminum. The choice of wire mesh material allows for a good galvanic match with mating flanges, thereby limiting the possibility of corrosion between gasket and flange.



## ▪ Copper Mesh

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Copper wire mesh is durable in many types of atmospheres. Although it is softer than a similar stainless steel wire mesh, it is also resistant to atmospheric corrosion but attacked by oxidizing agents such as nitric acid, ferric chloride, cyanides, and ammonia acid compounds.



## ▪ Copper Figure Gasket

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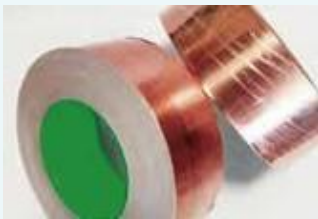
Copper figure gasket is made of beryllium copper alloy with electromagnetic compatibility shielding effect, which can be used to seal the gap between two contact surfaces and provide a high shielding effect.



## ▪ Copper Wool

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Copper Wool is low density permeable material with numerous applications. The defining characteristic of these wools is a very high porosity, typically 75-95% of the volume consisting of void spaces. Metallic wools have found a wide variety of applications in heat exchangers, energy absorption, flow diffusion and lightweight optics.



## ▪ Copper Tape

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Copper foil adhesive tape is made of 99.95% copper foil and acrylic adhesive. The tape is available with an acrylic adhesive which can be conductive or non-conductive. Suitable for all kinds of electronic products such as transformers, mobile phones, computers, PDA, PDP, LCD monitors, copiers and electronic products. It can be used for electro-static shielding, cable wrapping. Copper foil tape is chemically resistant. Thickness and width are customized.





## ▪ Waveguide

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Shielded waveguide is a proper name of shielding industry, its basic principle is to adopt the principle of waveguide, according to the use of the case to choose a fixed frequency, the electromagnetic wave higher than this frequency can be through and attenuation transmission.

## ▪ Titanium Tools

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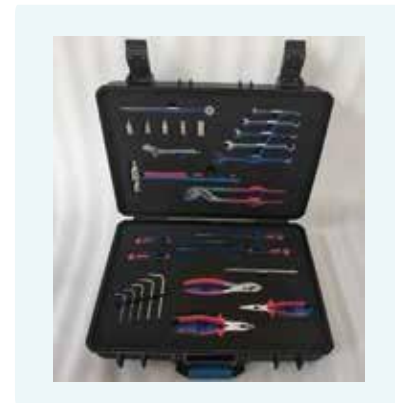
MRI safe hand tools are primarily made of titanium, making these MRI approved tools both durable and safe to magnetic wave exposure. Our selection of MRI Non-Magnetic tools include MRI pliers, wrench ,screw-driver hex key , with many of them available in your choice of sizes.



## ▪ LED Light Panel

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Mri Led Light specializing in installation Mri room ,provides professional shielding environment for scanning clear Mri film .Furthermore We have Great amount of film pictures chosen.

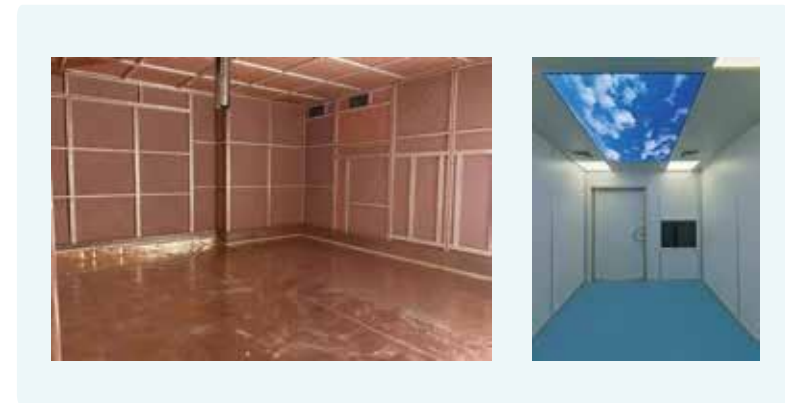


## ▪ Blue & Sky MRI Soft Film Ceiling Lights

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## ▪ RF Cage Turnkey Service

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# PART 02



## X-ray Room One-stop Solution Materials

- LEAD SHEET
- LEAD GLASS
- LEAD DOOR
- LEAD BARRIER
- LEAD PROTECTION ACCESSORIES & LEAD APRON

## ▪ Lead Sheet



Lead sheet is mainly used for installation CT, X ray room, and production of lead doors and lead accessories.

The most popular size of lead sheet is 1m\* 2m\* 2mm, widely used for X-ray/ DR room building.

Lead plate refers to a plate made by rolling metal lead. It has strong corrosion resistance, acid, and alkali resistance. It is also a relatively cheap radiation protection material in acid-resistant environment construction, medical radiation protection, X-ray, Ct room radiation protection, aggravation, sound insulation, and many other aspects.

|  |            |                            |                        |
|--|------------|----------------------------|------------------------|
| <b>Chemical Composition(%)</b>         |            | <b>Bismuth</b>             | ≤ 0.005                |
| <b>Silver</b>                          | 0.002-0.02 | <b>Lead</b>                | ≥ 99.90                |
| <b>Copper</b>                          | 0.04-0.08  | <b>Physical Properties</b> |                        |
| <b>Arsenic, Antimony, Tin together</b> | ≤ 0.002    | <b>Density</b>             | 11.34g/cm <sup>3</sup> |
| <b>Zinc</b>                            | ≤ 0.001    | <b>Brinell Hardness</b>    | 5.0 HB=38.3 MPa        |
| <b>Iron</b>                            | ≤ 0.002    |                            |                        |

## ▪ Lead Glass



To provide viewing of the patient in the x-ray room while providing protection to the operator, lead glass viewing windows can be furnished in the barrier. . Lead glass can be installed in multiple layers so as to provide a lead equivalency to the lead in the wall in which it is installed.

We can offer high quality ZF3/ZF6/ZF7 lead glass, with thickness 12mm to 25mm.- Standard size and customized size are all accepted.

## Lead Door



## Manual Single Swing Lead Door

Lead laminated doors are available for both new and existing structures. The standard door is constructed utilizing a single layer of sheet lead in the center equal in thickness to that in the wall in which the door is to be installed. The sheet lead extends to the edges of the door.

|                                       |  |                               |
|---------------------------------------|--|-------------------------------|
| <b>Size:width*height *thickness</b>   | Standard:2.1m*0.9m*50mm thickness                      |                               |
| <b>Structure material</b>             | Galvanized steel: 0.8mm for door leaf +1.6mm for frame | Painted color can be selected |
|                                       | Stainless Steel  | Metal color                   |
| <b>Protective material</b>            | Lead sheet inside :thickness: 1mm-10mm                 |                               |
| <b>Sound Insulation Performance</b>   | Rw=45dB (GB/T 8485-2008)                               |                               |
| <b>Visable lead glass window size</b> | 400mm*600mm*2/3/4/5/6mmPB or without window            |                               |



## ▪ Automatic Single Sliding Lead Door

The method selected to shield the door frame will depend upon the method of wall shielding installed, that is whether the lead was applied to the wall surface or used internally in the wall during construction. It is important to remember that the lead in the door frame must overlap the lead in the wall and be continuous on one side to the door stop surface to achieve effective shielding.

|                                       |   |                               |
|---------------------------------------|---|-------------------------------|
| <b>Size:width*height</b>              | Standard:2.1m*1.4/1.2m                                  |                               |
| <b>Structure material</b>             | Galvanized steel: 0.8mm for door leaf +1.6mm for frame  | Painted color can be selected |
|                                       | Stainless Steel   | Metal color                   |
| <b>Protective material</b>            | Lead sheet inside :thickness: 1mm-10mm                  |                               |
| <b>Sound Insulation Performance</b>   | Rw=45dB (GB/T 8485-2008)                                |                               |
| <b>Visable lead glass window size</b> | 800mm*600mm/400mm*600mm*2/3/4/5/6mmPB or without window |                               |
| <b>Accessories</b>                    | Whole set of motor +frame +door leaf                    |                               |

## ▪ Special Design of Wall



Galvanized Steel Folded to be panel. Then put lead sheet in the middle of panel, use galvanized steel strips to fix the panel. Outside face is also galvanized steel material with special painted

## ▪ Painted “Wall” Design



Different colors can be customized.

## ▪ Lead Barrier



Liftable Lead Screen, Movable Lead Screen, Lead Protective Curtain...We can offer different type and customized size and color.

## ▪ Lead Apron



# PART 03



RF Room One-stop Solution Materials



RF DOOR ▀

GALVANIZED STEEL SHEET ▀

CONDUCTIVE FOAM ▀

CONDUCTIVE FABRIC ▀

SHIELDING CABINET ▀

SILICON STEEL ▀

FERRITE TILE ABSORBER ▀

WAVE-ABSORBING MATERIAL——LPPFA SERIES ▀

## ▪ RF Door



RF Shielding Door is a most important part during RF shielding room installation, which is usually made by cold-roll steel sheets. The door can be designed and produced according to customers' requirements, such as manual, electric, pneumatic, sliding track operation, single door, double door and so on.

## ▪ Galvanized Steel Sheet

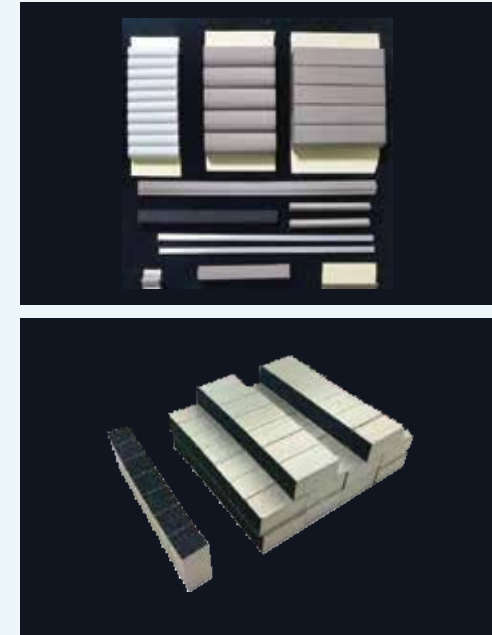


Galvanized Steel Sheet is an economical and practical material. It is easy to fold.

For the sheet, the maximum size for one sheet is 1.25 x 2.95m, while the size after folding is 1.15 x 2.85m. We can calculate the panel size and quantity for you according to the room size.

Except for the original color, we have also advanced electricity spray equipment and can offer different colors for choice.

## ▪ Conductive Foam



Conductive foam is composed of conductive cloth wrapped with conductive foam cotton. There is a hot melt adhesive between conductive cloth and conductive foam. The hot melt adhesive binds conductive cloth and conductive foam cotton into one structure. On the outer side of conductive cloth, there is a conductive adhesive for fixing conductive foam.



## ▪ Conductive Fabric



Conductive Fabrics also called RFID Fabrics, it is flat surface and with metallic luster. The product composition is 65% Polyester, 27 % Copper and 8% Nickel. The common color is double silver gray ( Light gold), while we can also offer single silver gray single black, and double black. Different colors will have different effect.

It has great conductivity and extensibility. It is easy for extrusion processing and installation. Its better corrosion resistance and anti-friction performance made its popular in the shielding field. It is widely used in high frequency electromagnetic field such as shielding room, mobile communications, computers, household equipment, electronic defense, and also for radiation protection clothes, curtains, RFID anti-theft bags and so on...

## ▪ Shielding Cabinet



EMC Products Radio Frequency (RF) shielded cabinets are designed to offer high levels of shielding attenuation typically for JOVI (Electromagnetic Pulse Protection) or TEMPEST requirements. All cabinets are built to specific customer requirements and as such include features such as power, telephone and data filtering, ventilation, power distribution systems and thermal insulation.

Panel material is 2 mm thick galvanised steel sheet for maximum shielding performance and corrosion resistance.

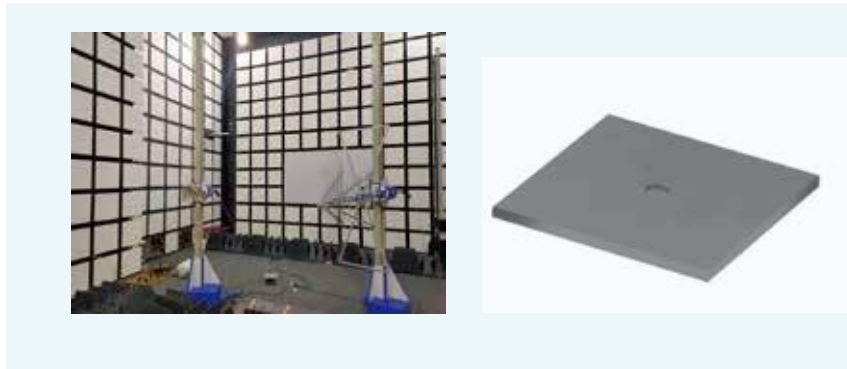
## ▪ Silicon Steel



Silicon steel is undoubtedly the most important soft magnetic material in use today. Applications vary in quantities from the few ounces used in small relays or pulse transformers to tons used in generators, motors, and transformers. Continued growth in electrical power generation has required development of better steels to decrease wasteful dissipation of energy (as heat) in electrical apparatus and to minimize the physical dimensions of the increasingly powerful equipment now demanded.

The earliest soft magnetic material was iron, which contained many impurities. Researchers found that the addition of silicon increased resistivity, decreased hysteresis loss, increased permeability, and virtually eliminated aging.

## ▪ Ferrite Tile Absorber



| Properties                         | Symbol                 | Unit               | Value                |
|------------------------------------|------------------------|--------------------|----------------------|
| Initial permeability               | $\mu_{iac}$            |                    | 5500 $\pm$ 20%       |
| Relative loss factor               | $\tan\delta/\mu_{iac}$ | $\times 10^{-6}$   | 15 (0.1MHz)          |
| Saturation flux density            | Bs                     | mT                 | 280(1194A/m)         |
| Remanence                          | Br                     | mT                 | 180                  |
| Coercivity                         | Hc                     | A/m                | 3                    |
| Relative temp.factor(20 °C ~60 °C) | aur                    | $\times 10^{-6}$   | 3                    |
| Curie Temperature                  | Tc                     | °C                 | >90                  |
| Density                            | $\delta$               | kg/ m <sup>3</sup> | 4.85x10 <sup>3</sup> |
| Resistivity                        | $\rho$                 |                    | > 100                |

## ▪ Wave-absorbing material——LPPFA series



Polyhydrogen ester foam cone absorbing material

1. Scope of application:near field/far field/tight field microwave anechoic chamber

2. Product features

- oxygen index & GT; 29% (GB/T2406-93),belong to inflammable B2 grade (GB8624-1997)·

- Installation method: generally, special environmental adhesive is used to mount on the shield body. When the material height is below 500mm, it can be installed by Velcro. In addition, it can also be mounted by fastener, which is easy to replace the material and move the darkroom

**WELCOME TO JOIN US!**

