MSR Series

Modular Shielding Rooms For High Voltage Testing

6.5m×3×4.2m Modularized Shielding Room

The shielding rooms are used for routine, type as well as research and development tests of power engineering components according to the IEC 60270, partial discharge measurements are performed in frequency range of between 30 kHz and 1 MHz. The shielding rooms are developed for this frequency range.

Since very high demands are placed on the testing of high-voltage cables in terms of PD background noise level, the shielding rooms are particularly optimized for this task. Shielding rooms can also be used for testing other components, such as transformers, switchgear, power cable,etc.

Compare to widely used modular panel RF shielding construction technique, Samgor develops a evolutionary construction technique, our newly developed MSR series shielding room use several modules to construct a whole shielding room, the number of modules is from 1 to 20. Typical size of shielding room is between 3m×2.4m×2.5m to 16m×12m×10.5m.

The basic construction and production technique of each module is similar to the normal container. So each module gets extremely high structural strength and extremely long working life.

Assembling and dismantling of MSR series shielding room is extremely easy compare to any similar size shielding room. Traditional weld type shielding room and most of modular panel shielding room are very difficult to dismantle and relocate to another area, but MSR series shielding room can easily and quickly be rebuilt within few days.

Double shielding panels are covering the whole shielding room, the first panels use 1.5mm thick zinc coating steel plate arranged in an overlapping manner, second shielding panels use 1.6mm thick, SPA-H steel panel with corrugation as also the outside decorative plate. It guarantees >75dB attenuation of electric field from 14kHz-1000kHz, >100dB attenuation of magnetic field from 200kHz-1000kHz.

For preservation, the MSR series shielding room uses three layers surface treatment, first layer is epoxy zinc rich primer for 20 microns, second layer is intermediate coating for 40 microns, third layer is polyurethane top coating for 50 microns. Good surface treatment guarantee long working life up to 100 years and very nice outlook compare to normal shielding room.

Shielding Room for 220kV Power Transformer

Facts in Brief:

Partial discharge (PD) measurements form a major part of the high-voltage testing procedure in the context of quality assurance plans for all components of power supply systems. Since high-voltage tests are typically integrated into production workflows, radiated and line-conducted interferences may enter the measuring circuit and distort the measuring signal. This is why an environment with very low PD background noise level, typically lower than 1 pC, is required for partial discharge measurements. So partial discharge measurements must be carried out in a shielding room. Radiated interferences are attenuated due to the shielding effect of the shielding elements. In addition, line-conducted interferences are attenuated by a specially designed power noise filter system and an earthing system that is adapted to the actual application.

According to the experience, the background noise level of <1 pC can generally be achieved.

Benefit and Advantage:

- Quick Assembling and dismantling due to evolutionary module design, typically assembling could be finished within 3 days;
- Customer allowed factory inspection, what is not possible for a whole shielding room if it a traditional shielding room, and it is easily upgradable even after being the factory and not only onsite;
- Low background noise level which less than 1pC;
- Light, CCTV and soft decoration are all included and installed before shipment;
- Extremely high structural strength, extremely long working life up to 100 years;
- Surface treatment follow ISO1496 standard, it is suitable for any means of transportation, guarantee it still keep nice outlook;
- Rolling up or sliding shielding door are available;
- Double steel or epoxy ground are available;
- Fast delivery time even less than 2 month;
- Supply turnkey solution for shielding room, save time and money for customer;
- Complete solution to solve the partial discharge background noise from grounding to EMI and EMC;

System and Components:

The shielding rooms consist of following components:

- Shielding modules;
- Shielding rolling up door or sliding door;
- Shielding personnel door;
- Power noise filter
- Natural ventilation of shielding room and control room
- Bushings for various media, such as water, air, oil and energy;

Double shielding panels covered the whole shielding room, the first panels use 1.5mm thick zinc coating steel plate are arranged in an overlapping manner, second shielding panel use 1.6mm thick, SPA-H steel panel with corrugation as also the outside decorative plate. Organic materials, such as wood, are not used as structural elements. Deformation caused by moisture, which would effect a reduction in shielding efficiency, is thus prevented even in the long term.

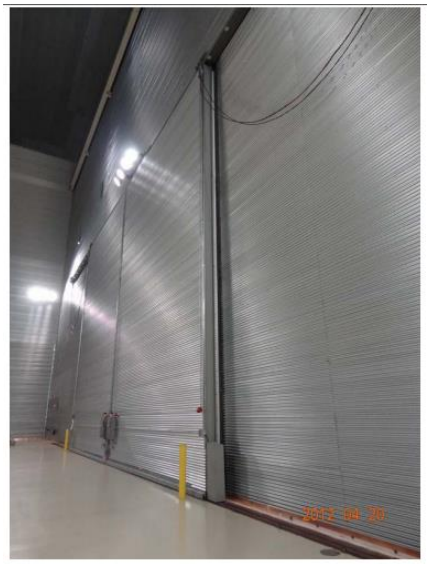
The shielding room uses independent modules assembled together; it is naturally isolated from civil building, and it is consistently isolated from the surrounding building. One of its features is an earthing system that is individually adapted to the test system used. This is how the low background noise level is reached.

The design of the test station, in particular the arrangement of test systems and tools, cable ducts, earthing boxes, electrical equipment and lighting, follows widely recognized human engineering principles. This ensures operator-friendly testing operations.

The control room use 10ft or 20ft size container base to upgrade to fit different size of shielding room. The control room and the personnel doors are integrated into the shielding concept and safety system. The test personnel can oversee the test process very well from the air-conditioned control room through big size isolation glass.

The shielding room uses independent structure, no need to hang on any existing buildings. Also when building a

shielding room, no need complex cooperation with the civil work designer and constructor.



Shielding Slid Door

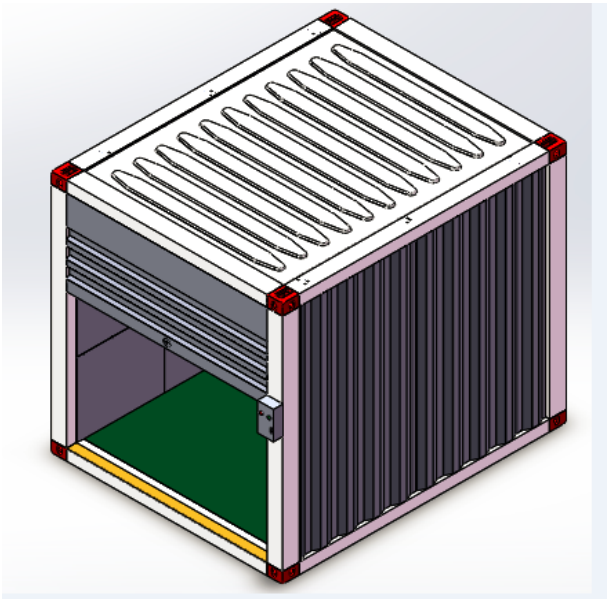
Shielding Rolling Door 1

Shielding Rolling Door 2

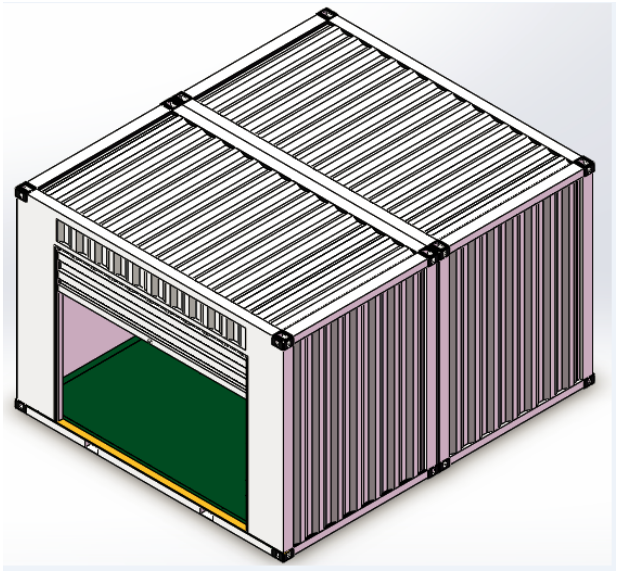
Planning Step for Shielding Room:

- Configuration design matches customer's workflows;
- Complete shielding and earthing concept;
- Coordinated assembly modules of shielding room;
- Turn Key to customer;

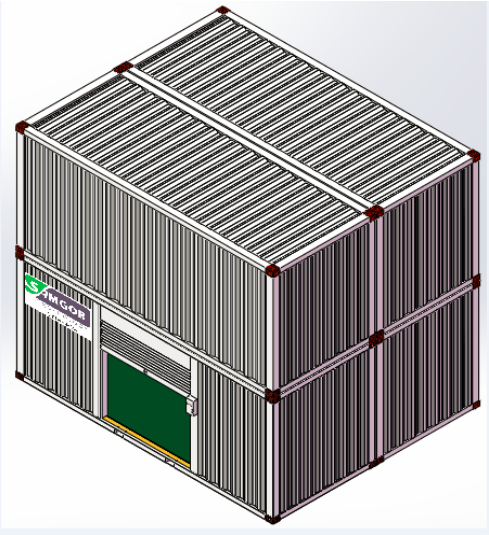
Standard Structure of Shielding Room and Components:



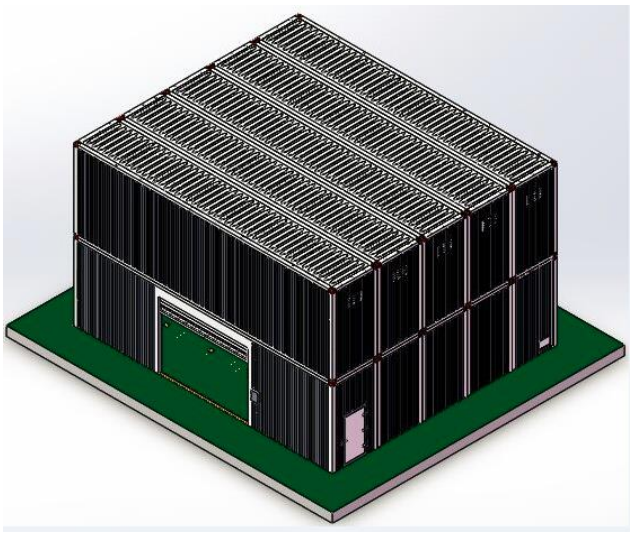
1 Module Quick Assemble



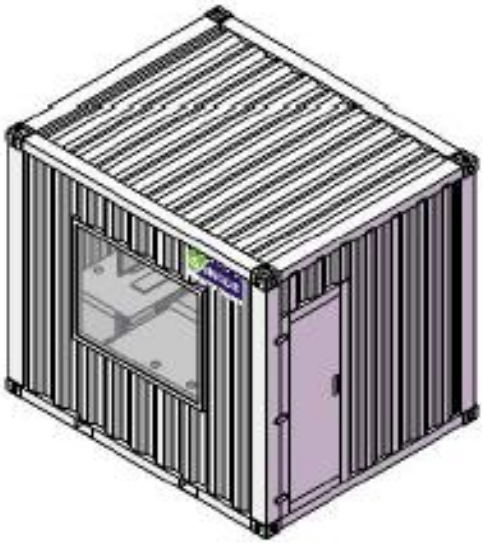
2 Module Quick Assemble



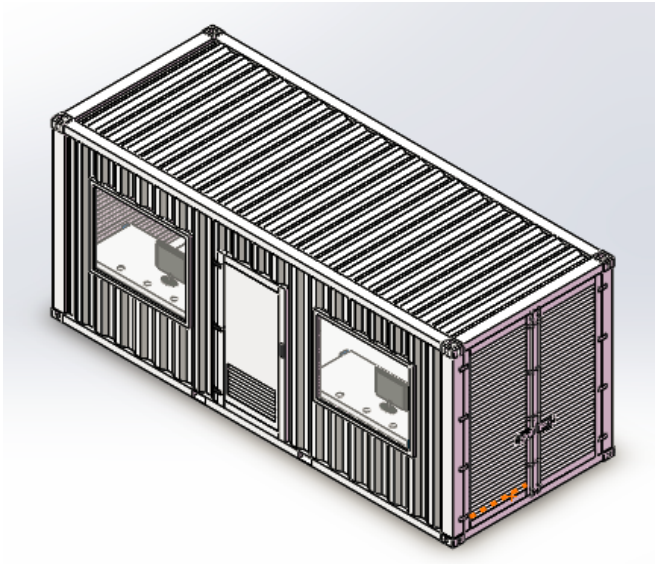
4 Module Quick Assemble



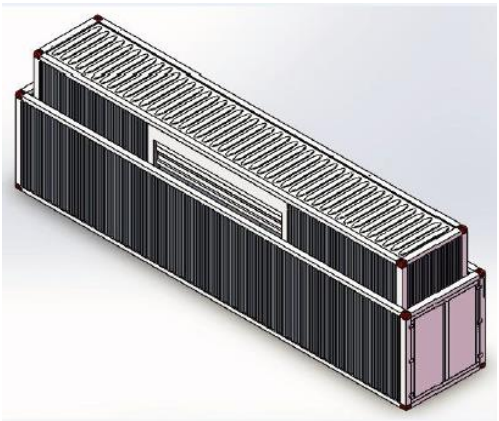
10 Module Quick Assemble



10ft Control Room

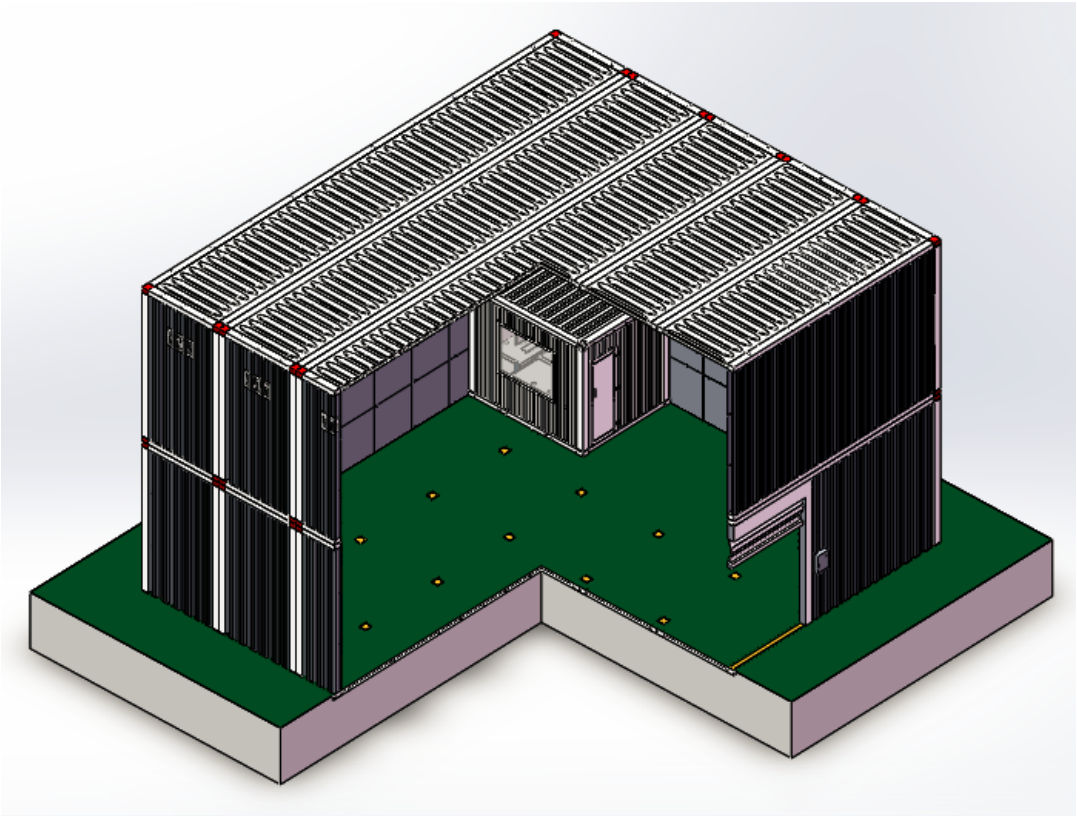


20ft Control Room

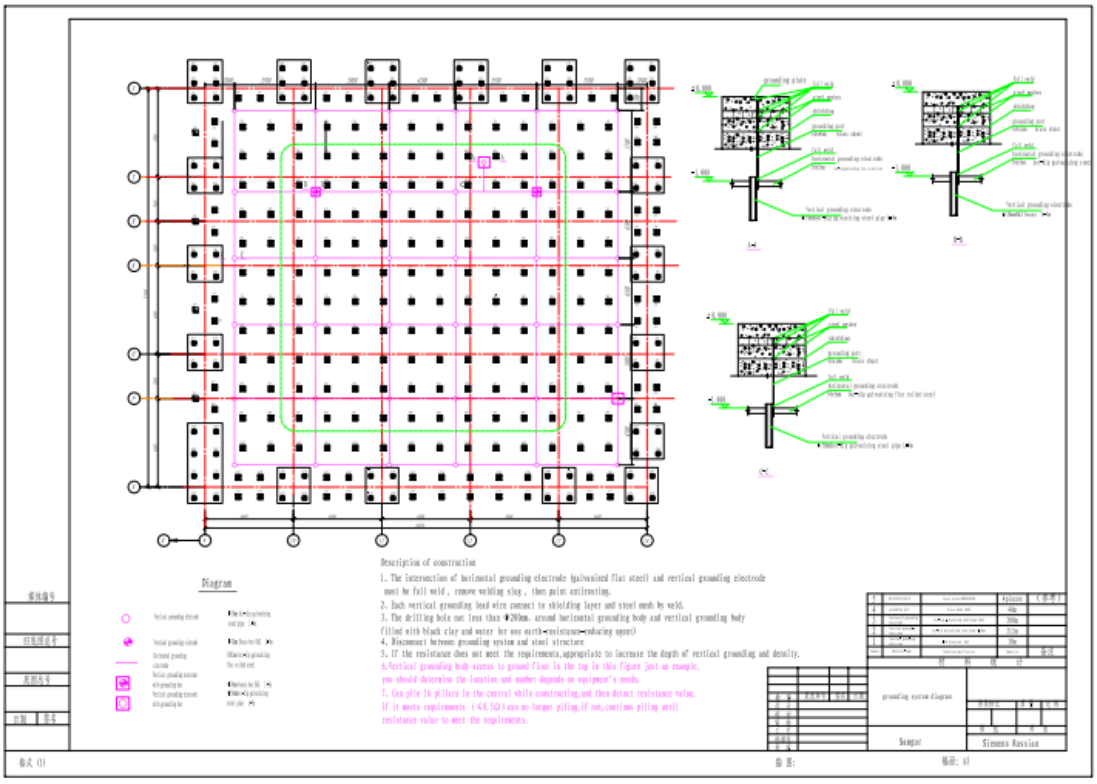


Transportation Condition

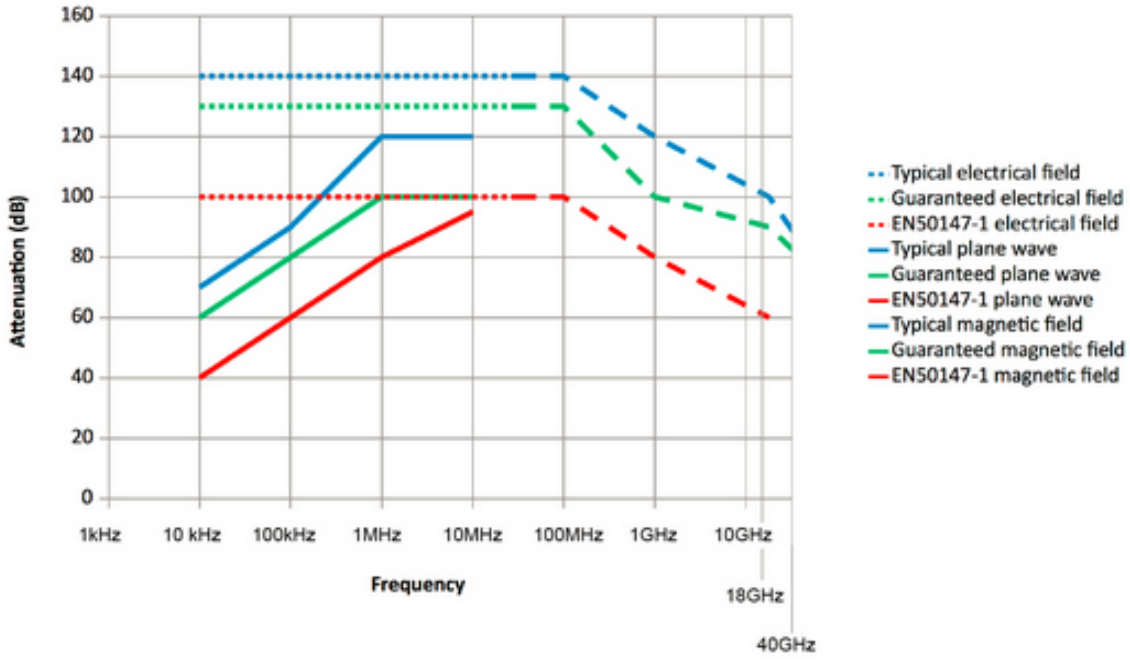
Sectional Axonometric Drawing10 Modules Shielding Room Drawing:



Typical Grounding Drawing:



Typical Performance of MSR Series Shielding Room:



Specification of MSR Series Shielding Room:

All MSR shielded rooms are customized to our customers individual requirements. Please fill MSR series questionnaires for detail design and commercial part.

Company Profile:

Over 20 years professional supplier in the high voltage test equipment business make the high voltage test department become most important branch of SAMGOR group, SAMGOR has a reputation for quality and reliability based on extensive products and vast experience. SAMGOR provides test, measurement and diagnostic equipments for a wide range of electrical applications. Test systems for laboratory, factory and field use are available.

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