Shielding Room

8mx5mx4m

Himalayal Corporation Limited
I. Main Technique Parameter:

1. Attenuation measured according to standard of GB12190-2006, front door ≥60dB, wall ≥80dB

Shielding attenuation effect (10kHz to dozens of MHz):

Magnetic field: > 60dB-80dB under 10kHz...100 kHz

2. Grounding requirement

Grounding by a single copper bar (length > 20-25M), under 3m above the ground, Grounding resistance is less than 0.5 Ω or lower.

Buyer take charge to procurement and construction in accordance with the supplier Supplied drawings .

3. Require a separate power supply system

4. Flooding 24 hours after complete insulation floor, then measure insulation resistance > 500MΩ with voltage of 2500V. (to be sure no welding defects from our past experiences )

5. When assembly finish, System noise levels ≤1pC at rated voltage

II. Shielding room Structure:

To make sure quality, we adopt with galvanized cold-rolled steel plate welding structure. To increase the outer surface is beautiful and intensity, the flange weld all painted by silver

Procee flow:
Photo 1, Joining 3d sketch
Photo 2. Jointing line drawing

Details A (Three sides intersect jointing schematic)
Details B: Three sides intersect is formed by a whole plate bending, that ensures each sides perpendicular to each other. There is not adopting with welding, considering of plate can bending deformation after welding, vertical degree is difficult to guarantee.

Details C: Standard plate, which bending by 2810x1490xthickness 2mm plate. 40x40xthickness4mmalvanized squaretube havereinforcement function.

Details D: Strengthen the keel is to strengthen entirety of shielding room. The installation requirment of top lamp: Top energy-saving lamps installation should be parallel with inside of shielding room, ensure there is no sharp corners which avoid partial discharge happening. Welding adopt gas of CO2, ensure rigor of welding and smoothness.

Standard plate production:
1. According to the unified specification to shear
Corners stamping
3. bending
4. Integer, flat-fell seam welding (Co2 gas shielded welding)

The whole assembly:
1. Standard plate assembling and weld to line shape accord with shielding room actual size. In order to ensure the whole wall surface smooth, each row of shielding plate placed on three strengthen keels (40×40×4 Torque tube type, double molding)
2. Use lifting equipment, welding shielding plate and steel structure column, jointing piece together form a shield wall. Wall adopt with Co2 gas shielded welding. All flat-fell seam requires full welding, put an end to false welding, virtual welding, solder skips, brush antitrust paint after welding.
3. Strengthen keel reinforcement welding. Shielding big door and small door installation.
4. Clean walls, interior wall paint with praying ivory white car paint.
5. Control room’s production and decoration, Shielding hall lighting installation, electrical installation.
6. Cleaning up, acceptance work

Shekling room dimension:

<table>
<thead>
<tr>
<th>Name</th>
<th>L(M)</th>
<th>W(M)</th>
<th>H(M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shielding room</td>
<td>8.0</td>
<td>5.0</td>
<td>4.0</td>
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</table>
**Door dimension**

<table>
<thead>
<tr>
<th>Name</th>
<th>Dimension</th>
<th>Quantity</th>
<th>Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big door</td>
<td>3.5x 3.5(M)</td>
<td>1 fan</td>
<td>Inflatable copper foil contact type</td>
</tr>
<tr>
<td>Small door</td>
<td>1.9x0.9(M)</td>
<td>1 fan</td>
<td>Spring insert door</td>
</tr>
</tbody>
</table>

**III. Technical Solution (welding type)**

1. The whole is used by galvanized cold-rolled steel sheet, hexahedron assembled and welded together.
   
2. Shielding room dimension: 5mx8mx4.0m

3. Outer wall decoration: Adopt with high quality choi steel sandwich foam (Two surface decoration)
   (Sandwich plate thickness: 50mm, steel plate thickness: 0.426mm, foam density: 13g.)
   Color select by Buyer

4. Insulation floor: with 8 mm thick PP board isolating shield room and earth, construction according to drawing.
   Dimension: 5.5m x 8.5m. Shielding room assembly above the insulation floor.
   Method to inspect floor: After finish welding, pour into water, to find if it's leaking. Measure insulation resistance after keeping 24 hours, insulation resistance > 500MΩ.

**VI. Control Room Structure**

Wall and ceiling adopt high quality color sandwich plate. Ground of control room using high quality compound floor. Observation window using wired shielding glass.
V. Shielding door structure

Big door structure:
Inflatable copper foil contact type shield door (Door frame adopts with double balloon) with rail electric door and positioning pin structure. Transmission is sensitive and smooth, contact shielding is reliable and have good performance. The crack of door with GB12190-1990 "small ring method", measured attenuation is more than 80 dB.

According to layout drawing

Smaller door structure:
Import beryllium bronze spring leaf plug type structure
Materials: stainless steel (attenuation level: above 80dB)

VI. Shielding Room lighting requirement

1. The requirement to Lighting, air conditioning, power supply
a. Shielding room lighting: 100W energy-saving lamps (Philips) 4 calyx with filter
   Testing place: 200W floor-lamp (Philips) 4 calyx with filter
   Lampshade size: 300mm × 300mm × 300mm(H)
b. Control room lighting: incandescent lamp 2 calyx with filter
   c. 1.5 air conditioning in control room 1 set (Haier)
d. Control room need to install single-phase, three-phase socket each two, AND one 10A distribution box.

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Emergency cut off button: Install at big door and control room, which can quickly cut off high voltage

**Safety loop:**
Shielding door, ordinary small door's switch and resonant system's monitoring system connect circuits, which will cut off high voltage when door not closed and test program failure

**Warning light:** Install at the top of big door and smaller door, limit switch: 3 (within Safety loop)

**VII. Shielding Room Performance Measurement:**

**Shielding attenuation effect:**
Magnetic field: 10kHz attenuation 60dB, Linear raise to 100kHz attenuation 100dB

**Attenuation effect under different frequency:**

![Graph showing electric field and plane wave, magnetic field, and damping efficiency of shielded room.]

Insulation resistance: After shielding room construction complete, insulation floor resistance with mother building > 10kΩ, measured by insulation transformer above 500V. Grounding resistance: Single copper bar < 1Ω (better less than 0.5Ω)

**VIII. Construction Procedures, Division of labor**
<table>
<thead>
<tr>
<th>Item</th>
<th>No</th>
<th>Project name</th>
<th>Schedule for Shielding room</th>
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<tbody>
<tr>
<td></td>
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<td>Time (day)</td>
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<tr>
<td>Insulation Floor Construction</td>
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<td>Layout diagram confirmation</td>
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<td></td>
<td>2</td>
<td>Foundation excavation</td>
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<tr>
<td></td>
<td>3</td>
<td>Ground connection</td>
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<tr>
<td></td>
<td>4</td>
<td>Pouring based cement</td>
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<tr>
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<td>Insulation floor welding</td>
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<td>6</td>
<td>Reinforcing mesh welding</td>
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<tr>
<td></td>
<td>7</td>
<td>Pour second layer of concrete</td>
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<tr>
<td>Shielding Room Construction</td>
<td>8</td>
<td>Shield welding</td>
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<td>Electric control box installation</td>
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<td>Shielded room grounding welding</td>
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<td>12</td>
<td>Threading pipe laying</td>
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<td>Shielding Room Construction</td>
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<td>Buyer</td>
<td>Concrete structure drawing</td>
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<td>2 Supplier</td>
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<td>16 Control room construction</td>
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<td>Control room layout diagram</td>
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<tr>
<td>17 Lighting power line installation</td>
<td>1 Supplier</td>
<td>Lighting electrical diagram</td>
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<td>1 Two side</td>
<td>Acceptance test report</td>
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