Jumbo Eco Pile System

JET GROUTING
**Large diameter Jet Grout Column**
**Adaptable to various site requirements**

**JEP system**

**ADVANTAGES**

1. **Large Diameter Column**
   Hardening agents are jetted with a high energy and discharge rate from double jet monitors to construct larger diameter improved columns (dia 3.5m).

2. **High Speed Construction**
   Double jet makes the process more efficient as compared to conventional jet grouting and shortens construction time.

3. **High Quality Product**
   In-situ soil is cut into smaller pieces while two jets rotates and crosses in the ground.

4. **Cost Efficiency**
   The large diameter improvement reduces the number of columns required.

---

### TABLE: Cutting Materials and Standard Discharge Capacity

<table>
<thead>
<tr>
<th>Cutting Materials</th>
<th>Standard Discharge Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Pressure 40MPa, Discharge Rate 50L/min</td>
</tr>
<tr>
<td>Hardening agents</td>
<td>Pressure 35MPa or more, Discharge Rate 300L/min</td>
</tr>
<tr>
<td>Compressed Air</td>
<td>Pressure 1.05MPa, Discharge Rate 4 to 8m³/min</td>
</tr>
</tbody>
</table>

---

**PLANT CONFIGURATION**

- Ultra-high pressure JEP pump
- Ultra-high pressure water pump
- Compressor
- JEP machine
- Vacuum pump
- Slurry plant
- Water tank
- Compressor
- Water tank
- Slurry plant
- JEP machine
- Vacuum pump
- Spoil
- Compressed air
- Ultra-high pressure water
- Compressed air
- Ultra-high pressure hardening agents
- Ultra-high pressure hardening agents
- Ultra-high pressure water
- Compressed air
- Triple-tube rod
- Waste treatment

---

**APPLICABLE SOIL RANGE**

- Sa
- Cce
- Effci
- Note: 1) Wh
  2) Se
**APPLICABLE SOIL RANGE**
Applicable soils and effective diameter of standard column

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Effective Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandy Soil</td>
<td>3.5m</td>
</tr>
<tr>
<td>Cohesive Soil</td>
<td>3.2m~3.5m</td>
</tr>
</tbody>
</table>

Note:
1) When the cohesion of the target ground exceeds 50kN/m², separate study is required.
2) Separate study is also required for sand and gravel layer.

**STANDARD MIX**

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland Cement</td>
<td>760kg</td>
</tr>
<tr>
<td>JEP admixtures</td>
<td>10kg</td>
</tr>
<tr>
<td>Water</td>
<td>751kg</td>
</tr>
</tbody>
</table>

**STANDARD PRODUCT SPECIFICATION**

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>UCS (MN/m²)</th>
<th>Cohesion (MN/m²)</th>
<th>Adhesive strength (C)</th>
<th>Tensile strength (O)</th>
<th>Elastic modulus (E)</th>
<th>Horizontal subgrade reaction (K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandy Soil</td>
<td>3</td>
<td>0.5</td>
<td>1/3 C</td>
<td>1/3 C</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Cohesive Soil</td>
<td>1</td>
<td>0.3</td>
<td>2/3 C</td>
<td>2/3 C</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Note:
1) JE-01 for sandy soil, JE-02 for cohesive soil

**APPLICATION EXAMPLE**