HKPC-STS
A Packaged Sewage Treatment System

Environmental Management Division
Hong Kong Productivity Council
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Background

Sewage treatment system, HKPC-STS, is a packaged system designed for treating toilet wastewater (sewage) in some specific locations where are unable to discharge to sewer, e.g. rural schools, campsites, etc.
Introduction

Common Treatment Methods

• Discharge to sewer (if available)
• Mobile toilets and tanker away of sewage periodically
• Septic tank and soak away pit
Technical Details

Design Basis

• Influent Standard
  – No. of people served : 50 ~ 200
  – Influent flow : 3 ~ 12 m³/day
  – BOD₅ : up to 250mg/L
  – COD : up to 400mg/L
  – SS : up to 400mg/L

• Treated Effluent Standard (storm drain, etc.)
  – BOD₅ : 20mg/L
  – COD : 80mg/L
  – SS : 30mg/L
Flow Schematic

HKPC-STS

INFLUENT

SCREEN

BLOWER

AUTOMATIC DISINFECTION UNIT

DOsing PUMP

CHANNEl

ANAEROBIC CHAMBER

AEROBIC CHAMBER

SEDIMENTATION & DISINFECTION CHAMBER

CLORINE SENSOR

EFFLUENT

SLUDGE DISCHARGE
Treatment Process

- HKPC-STS consists of an anaerobic chamber, an aerobic chamber and a sedimentation and disinfection chamber.
- Wastewater from toilets is firstly discharged into the anaerobic chamber for digestion and decomposition.
- Then the wastewater will be overflowed into the aerobic chamber for the aerobic treatment process. Soluble and suspended organic matters in the wastewater are absorbed and assimilated by the microorganisms growing on the surface of the fill media.
- Finally, wastewater will enter into the sedimentation and disinfection chamber for final sedimentation and disinfection.
Technical Features

- Flexible in site installation. System can be floor mounted, buried wholly or half-submerged.
- Made of FRP. Light weight, high strength, anti-corrosion and high durability.
- Simple, continuous and automated operation.
- Low noise, less odor and less sludge generated.
- Excellent treatment performance.
Application Area

• The **HKPC-STS** has three standard models to suit different inflow rate and different sizes of construction site to comply with general effluent standard for discharge to storm drain, etc.):

  • | Model No. | Capacity | Dimensions   |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>STS-50</td>
<td>3m³/day</td>
<td>2.0 X 2.7 X 2.3 m</td>
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<tr>
<td>STS-100</td>
<td>6m³/day</td>
<td>2.0 X 3.9 X 2.3 m</td>
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<td>STS-200</td>
<td>12m³/day</td>
<td>2.0 X 7.2 X 2.3 m</td>
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Commercialization Package

Part A  Design Information
• System design data
• System specification
• Flow schematic, electrical and mechanical drawings

Part B  System Design Reference
• Layout drawings for installation arrangement
• Operation and Maintenance Manual
• Testing and Commissioning Report

Part C  Technical Support
• One year on-site technical support on installation, testing and commissioning of system
Case Sharing
Transportation and Installation
Transportation and Installation
Testing and Commissioning
Testing and Commissioning
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Testing and Commissioning
## Treatment Performance

### Wastewater Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Discharge Limit</th>
<th>Influent</th>
<th>Effluent</th>
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<tr>
<td>BOD₅ (mg/l)</td>
<td>20</td>
<td>140</td>
<td>10</td>
<td>150</td>
<td>14</td>
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<td>COD (mg/l)</td>
<td>80</td>
<td>260</td>
<td>49</td>
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<td>50</td>
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<td>SS (mg/l)</td>
<td>30</td>
<td>63</td>
<td>7</td>
<td>61</td>
<td>26</td>
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<tr>
<td>E-Coli (count/100ml)</td>
<td>1000</td>
<td>---</td>
<td>&lt;2</td>
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<td>&lt;2</td>
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Project References
Thank You!

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