OKADA - Sludge Dryer functions as a second tier dryer after the mechanical dewatering (filter press, belt press & decanter). It is designed to further reduce the weight and moisture of the wet sludge in an intrinsically safe operation, thereby eliminating the fire hazard risk. The results of reducing the sludge weight will significantly lower the disposal cost. With more than 10 years in sludge drying manufacturing, OKADA Sludge Dryer aims to bring cost-effective solutions to customers around the world and continue to preserve the environment for future generations.

**Sludge Dryer**

=> Schematics description

OKADA - Sludge dryer operates by generating dry warm air thru a refrigerant heat pump without the use of any combustible fuel or gases, thermal oil and electric heating element. The dried warm air is circulated thru the wet sludge in a closed loop system, extracting the moisture from the wet sludge which then be channelled to a dehumidifying cooling coil. The dehumidifying coil will removed the moisture from the air thru condensation process, thereby producing dry air again. Following that, another condenser coil will act as a heat source to increase the temperature of the dried air to 45-55deg Celsius. The use of refrigerant cycle to create dry air and as a heating source, give an advantage of energy equilibrium in an intrinsically safe environment and energy efficient compared to conventional dryer.

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**Contact Information**

tel: +6 03 7499 2301
+6 03 8051 2310
fax: +6 03 8066 6292

No.22, Jalan TPP 1/10
Taman Perindustrian Puchong
47160 Puchong, Selangor, Malaysia

www.wattersontech.com
equiry@wattersontech.com
How does it work:

1. Filter Press
2. Sludge from Filter Press (~70 ± 5% moisture content)
3. kada Sludge Dryer
4. Dried Sludge (~50 - 60% weight reduction, ~15 ± 5% moisture content)

Key Advantages:
- Environmentally Friendly
- No Fire Hazard
- Scrubber System Not required
- Low Energy Consumption
- The dryer operates in a close loop system with no air emission, hence does not required any legal application.
- Conserving low energy requirement.
- Minimal maintenance.
- Environmental benign - no utilization of CFC.
- Simple and automated operation with timer control.
- Low labour requirement.
- Alternative to conventional drying method with minimal dust generation.
- No fine hazard.

Process Flow Diagram:
(Continuous Belt Sludge Dryer)

Legend:
- By Client
- By Watterson
How does it work

1. PU Panel with Stainless Steel Surface
   - Reduce maintenance cost as stainless steel surface is used
   - PU foam traps the hot air, thus increase efficiency & reduce energy usage.
   - Premium feel and touch

2. Anti-Corrosion Coating
   - Prevent corrosion on Coils

3. Auto-wash System
   - Remove dust & Corrosive chemical build-up
   - Decrease the need for maintenance

4. Isolation Valve
   - Reduce risk of malfunction and increase in safety usage
   - Easier parts replacement

5. Easy Maintenance Blower
   - Easy maintenance for greasing and change of bearing

6. Blower Vibration Damper
   - Reduce vibration on machine and other sensitive parts
   - Reduce wear and tear on blower and machine structure

7. Easy Maintenance
   - Large spacious area for easy cleaning and maintenance.

8. Pneumatic Jack System
   - Keep system in enclosed loop
   - High durability with high pneumatic lifting loop (Batch Dryer Only)

Sludge Bin Key Features

Tote Dumping System
- Design specifically to unload massive amount of sludge bin
*Available for T1500 onwards
**Optional for T1000

J-Hook System
- Enables faster unloading of dried sludge
- Equipped using forklift
*Available for T1500
**Optional for T1000

Stainless Steel Perforated Plate
- Reduce air flow turbulence
- Increase flow of hot air
- Corrosion resistant
# Sludge Specifications

![Diagram of Continuous Sludge Dryer](image)

## Continuous Sludge Dryer

<table>
<thead>
<tr>
<th>Model</th>
<th>C4T</th>
<th>C6T</th>
<th>C10T</th>
<th>C15T</th>
<th>C20T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet Sludge Input Capacity</td>
<td>4 tons</td>
<td>6 tons</td>
<td>10 tons</td>
<td>15 tons</td>
<td>20 tons</td>
</tr>
<tr>
<td>(Based on Wet Sludge with 75-82% Moisture Content)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Removal Rate (Kg/h)</td>
<td>120</td>
<td>180</td>
<td>300</td>
<td>440</td>
<td>590</td>
</tr>
<tr>
<td>(Based on 75-82% Moisture Content reduce to 20% ± 5%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>Continuous</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Consumption (Based on Kwh/day)</td>
<td>1,265</td>
<td>1,635</td>
<td>2,930</td>
<td>4,080</td>
<td>5,855</td>
</tr>
<tr>
<td>Based on kWh/kg Sludge dry</td>
<td>0.27 - 0.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dryer System Height (m)</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>2.50</td>
<td>2.60</td>
</tr>
<tr>
<td>Dryer System Width (m)</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Dryer System Length (m)</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Number of Train</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Power Supply</td>
<td>380-420V/3ph/50Hz; 440-480V/3ph/60Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture Content of Incoming Sludge</td>
<td>75% - 82%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture Content of Dried Sludge</td>
<td>20% ± 5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dried Sludge Disposal Method</td>
<td>Screw Conveyor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Water removal rate is calculated based on ambient condition: T=30°C @ RH=80%*

Actual Product may varies from specifications.

---

tel: +6 03 7499 2301
+6 03 8051 2310
fax: +6 03 8066 6292
No. 22, Jalan TPP 1/10
Taman Perindustrian Puchong
47160 Puchong, Selangor, Malaysia
www.wattersontech.com
enquiry@wattersontech.com
### Model T1500 - T2000 - T3000

![Diagram of Model T1500 - T2000 - T3000](image)

### Model T500 - T1000

![Diagram of Model T500 - T1000](image)

### Batch Sludge Dryer

### Model T500 - 1000 - 1500 - 2000 - 3000

<table>
<thead>
<tr>
<th>Model</th>
<th>T500</th>
<th>T1000</th>
<th>T1500</th>
<th>T2000</th>
<th>T3000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet Sludge Input Capacity / day&lt;br&gt;Based on Wet Sludge with 70-75% Moisture Content</td>
<td>500kg</td>
<td>1000kg</td>
<td>1500kg</td>
<td>2000kg</td>
<td>3000kg</td>
</tr>
<tr>
<td>Water Removal Rate (Kg/h)&lt;br&gt;Based on 70-75% Moisture Content reduce to 15% ± 5%</td>
<td>15</td>
<td>30</td>
<td>45</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>Operation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Consumption (Based on Kwh/day)</td>
<td>180</td>
<td>260</td>
<td>525</td>
<td>625</td>
<td>820</td>
</tr>
<tr>
<td>Based on kWh/kg Sludge dry</td>
<td></td>
<td>0.26 - 0.36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dryer Height (m)</td>
<td>2.40</td>
<td>2.70</td>
<td>2.60</td>
<td>2.60</td>
<td>2.6</td>
</tr>
<tr>
<td>Dryer Width (m)</td>
<td>1.45</td>
<td>1.88</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Dryer Length (m)</td>
<td>1.45</td>
<td>1.95</td>
<td>2.00</td>
<td>2.50</td>
<td>2.50</td>
</tr>
<tr>
<td>Number of Cycle/day</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Quantity of Sludge Bin&lt;br&gt;2 (1d, 1s)</td>
<td>2 (1d, 1s)</td>
<td>8 (4d, 4s)</td>
<td>4 (2d, 2s)</td>
<td>12 (6d, 6s)</td>
<td>6 (3d, 3s)</td>
</tr>
<tr>
<td>Bin Active Capacity (l)</td>
<td>275</td>
<td>588</td>
<td>450</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td>380-420V/3ph/50Hz; 440-480V/3ph/60Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Panel</td>
<td>Panel c/w selector switch</td>
<td>Panel c/w Touch Screen feature &amp; selector switch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture Content of Incoming Sludge</td>
<td>70% - 75%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moisture Content of Dried Sludge</td>
<td>15 ± 5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dried Sludge Disposal Method</td>
<td>J-hook &amp; Forklift</td>
<td>J-hook &amp; Forklift/&lt;br&gt;Tote dumping system*</td>
<td>Tote dumping system*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Water removal rate is calculated based on ambient condition: T=30°C @ RH=80%