



MBD™ Modular Brine Crystallization System

HPD® Evaporation and Crystallization

WATER TECHNOLOGIES

Thermal, Modular Wastewater Treatment System

Evaporation is an effective and reliable method to treat wastewaters that contain relatively high concentrations of total dissolved solids (TDS).

Veolia Water Technologies offers the **MBD™ (Modular Bulldozer Design) System** as an ideal solution that not only effectively treats high TDS wastewater, but also manages the subsequent mixed salts. Utilizing Veolia's HPD® thermal evaporation technology, it is a proven and cost-effective solution to the high cost, permitting issues, and long-term liabilities associated with multiple ponds.

System Description

The system is based on HPD® Forced Circulation Crystallization technology to treat a variety of waste streams followed by management of waste brines for disposal (as a solid or concentrated waste brine).

This “Bulldozer” system is supplied as a modular, skidded system and designed to treat feed from RO reject, ponds, or untreated brines without complex pretreatment:

- Capacity: 13.5 m³/h (60 gpm)
- High-efficiency, Mechanical Vapor Recompression (MVR) driven
- Process designed to resist scaling
- Materials of construction minimizes corrosion
- Management of waste brines and associated equipment

Benefits & Features

Environmental Performance

- Water recovery up to 99%
- High-purity distillate suitable for reuse, discharge, or aquifer reinjection
- Produces solid salt cake suitable for landfill disposal
- Minimal chemical consumption

Modular Design

- Rapid deployment to site
- Supplied as (3) skids; can be redeployed
- Shippable by standard, over-the-road transport
- Small footprint

Mixed Salt Management

- Centrifuge or filter press option
- Supplied as skidded package

Applications

Pond
volume
reduction

Eliminates
need for new
ponds

Pilot well
testing

Zero
Liquid Waste
(ZLW)
requirements



Supplied As Modular System

The **MBD™ System** is designed as a modular and skidded system that can be shipped by over-the-road transport. This allows rapid deployment to site while reducing overall installation costs.

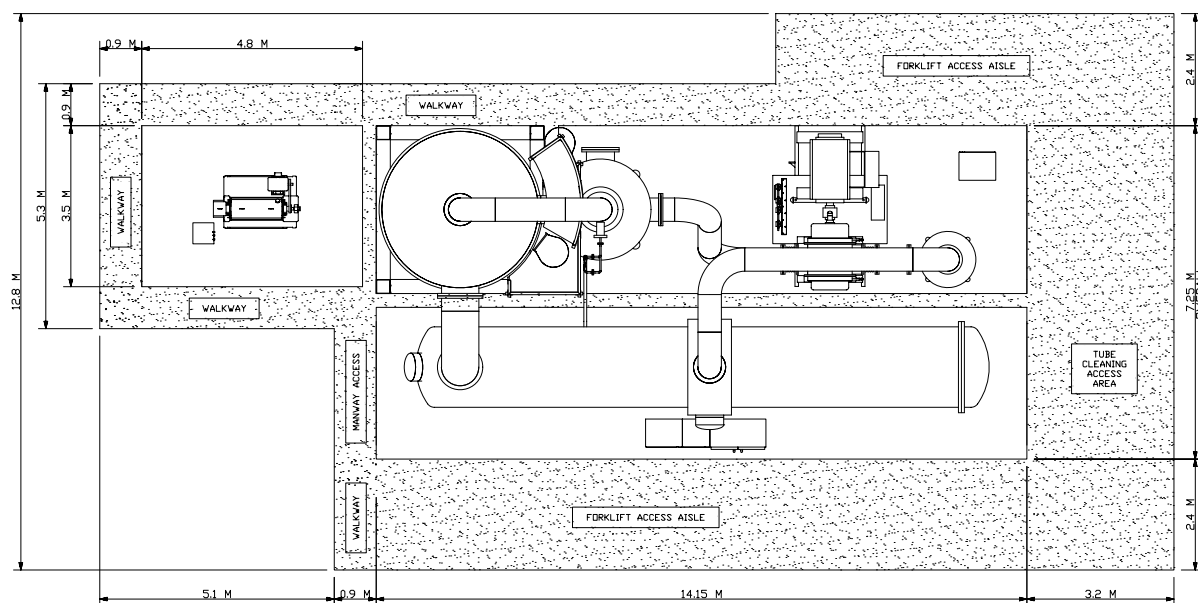
The tables below outline the content of each module and skid as well as associated equipment supplied for the system.



| Components | Description |
|------------|---------------------------|
| Module #1 | Heater/heat exchanger |
| Module #2 | Blower/compressor |
| Module #3 | Crystallizer vapor body |
| Skid | Centrifuge / filter press |

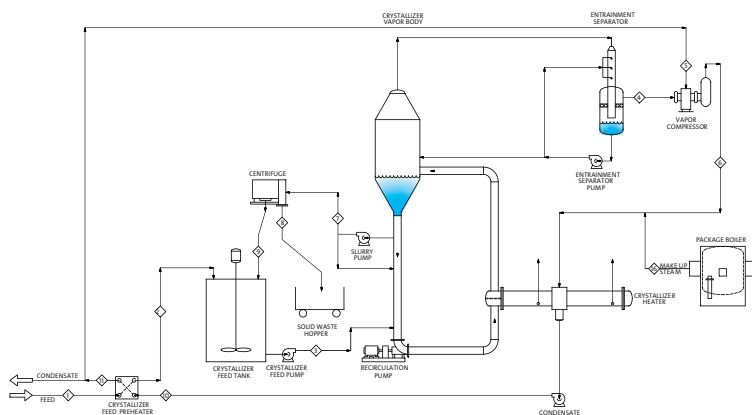
| Ancillary Equipment Included | |
|---------------------------------|------------|
| Platforms and decking | Pumps |
| Instrumentation, control panels | Insulation |
| LC and motor starters | Piping |
| Electrical, wiring | Valving |

General Arrangement



Simplified Flow Diagram

Typical for Model 300



Design-Build-Operate-Maintain

- Extended scope capabilities
- Water plant operations
- Performance guarantees



Resourcing the world

Veolia Water Technologies HPD® Evaporation and Crystallization

Plainfield, IL, USA
tel +1 (815) 609-2000

Getxo, Vizcaya, Spain
tel +34 94 491 40 92

Pymont, New South Wales, Australia
tel +61 (0) 407 520 605

São Paulo, Brazil
tel +55 (11) 3888-8800

Shanghai, P.R. China
tel +86 186 2182 0613

Singapore
tel +65 (6546) 1110

Calgary, AB Canada
tel +1 403 261-0873

hpd.info@veolia.com
technomaps.veoliawatertechnologies.com/hpdevaporation • hpd.info@veolia.com