



Electro-Osmosis Dehydrator

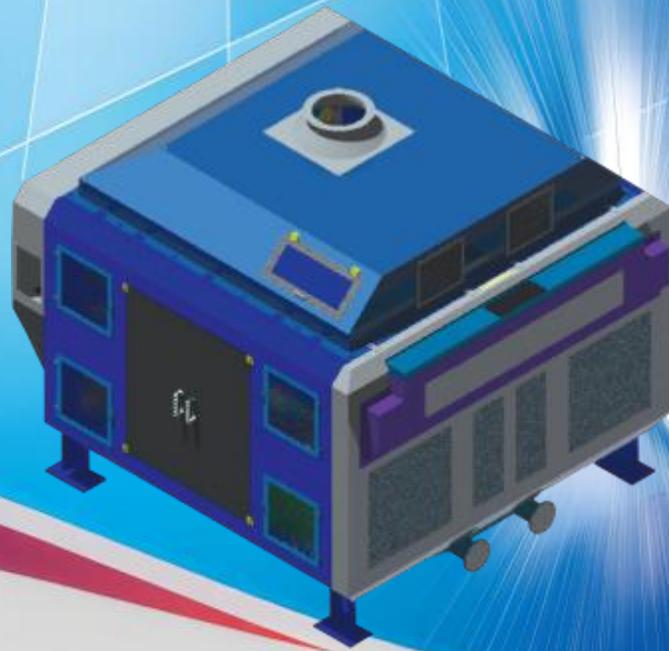
Let's be with Korea Turbo Inc. for clean world and courageous challenge.

Hybrid-H2400

Achieved sludge water content weight percentage of 60wt% from 98wt%.

Standard-S2400

Achieved sludge water content weight percentage of 60wt% from 80wt%.



KOREA TURBO INC.

www.k-turbo.com

New Technology in Reducing Sludge!

Clean world with courageous challenge

Korea Turbo Inc. is a company specialized in manufacturing an electro-osmosis dehydrator based on a core technology of efficiently reducing sludge, and a company specialized in reducing total moisture content in sludge based on accumulated technology with a dream of blue ocean strategy in sludge treatment markets under a management policy of "Big Think" and "21C Green Leader".

The electro-osmosis dehydrator completed through several years of R&D for solving technical problems involved in sludge treatment is the core technology for reducing sludge by Korea Turbo Inc. as an environment-friendly company dedicated to reduction of sludge. We will contribute to development of environmental industries by providing equipment and technologies capable of utilizing the hitherto disposable waste sludge in environment-friendly methods.

In order to enhance services and quality values provided to our customers, we will always concentrate on R&D as a company based on advanced management, technology management and environment management. We solicit your encouragement and interest on our courageous challenge.

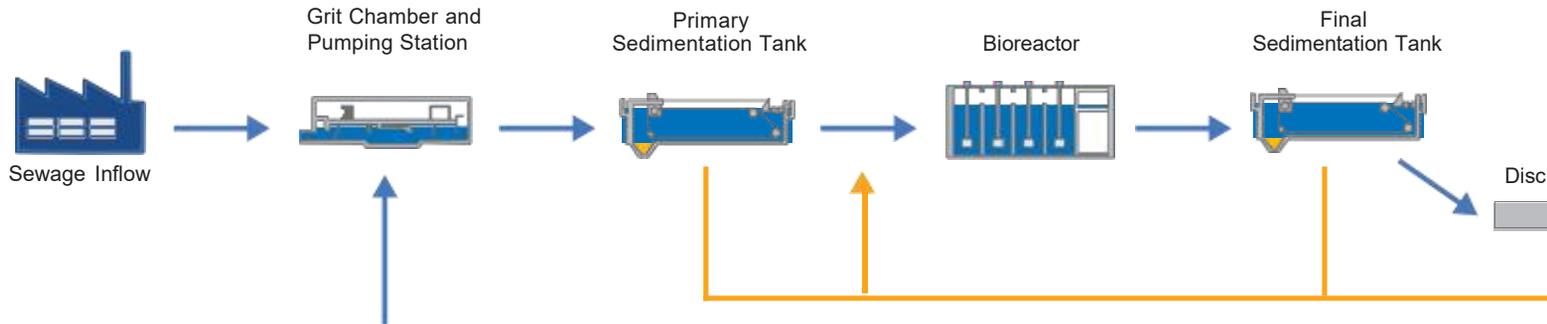
2012 ~ 2024

- Agreement concluded to supply an electro-osmosis dehydrator capable of treating 100 tons of sewage sludge with Zhejiang Province in China
 - Exported one electro-osmosis dehydrator (EDG-S1200) to China
 - Technical agreement concluded with Chinese Penyao Group
 - LINC concluded with Gwangju University
 - Discussion under way to manufacture electro-osmosis dehydrators with WLSSD Sewage Treatment Plant in Minnesota, USA

- Two electro-osmosis dehydrators manufactured at a local factory of Penyao Group, China
- Technical MOU concluded to supply an electro-osmosis dehydrator with WLSSD Sewage Treatment Plant in Minnesota, USA after trial test
- Nanjing sewage treatment plant activated after completion of trial test at Penyao Group factory, China
- sewage sludge has been supplied to more than 30 Project

*“As the best company in the field
of sludge treatment in the world”*

Water Treatment Process



Achieved sludge water content weight percentage of 60wt% from 98wt%.



Sludge 98wt%



Sludge 60wt%

- **Sludge** input using sludge head (windmill method)
- **Efficiency** enhanced by combination of gravity dehydration with electric dehydration
- **Increased** effect of reducing disposal/transportation costs by reduced sludge weight
- **Easy** maintenance and manipulation, fire-proof, and explosion-proof safety during operation
- **Independently** usable by dispensing with existing primary dehydrator

specification & Hybrid

Classification	Contents
Name	Hybrid-H2400
Subject of dehydration	Sludge (98wt%)
Total moisture content after dehydration	Around 60wt%
Belt width	2,460 mm
Disposable quantity (ton/hr)	8~10
Consumed electric power	150kw
Standard (mm)	3,510×3,424×3,430

Achieved sludge water content weight percentage of 60wt% from 80wt%.



Sludge 80wt%



Sludge 60wt%

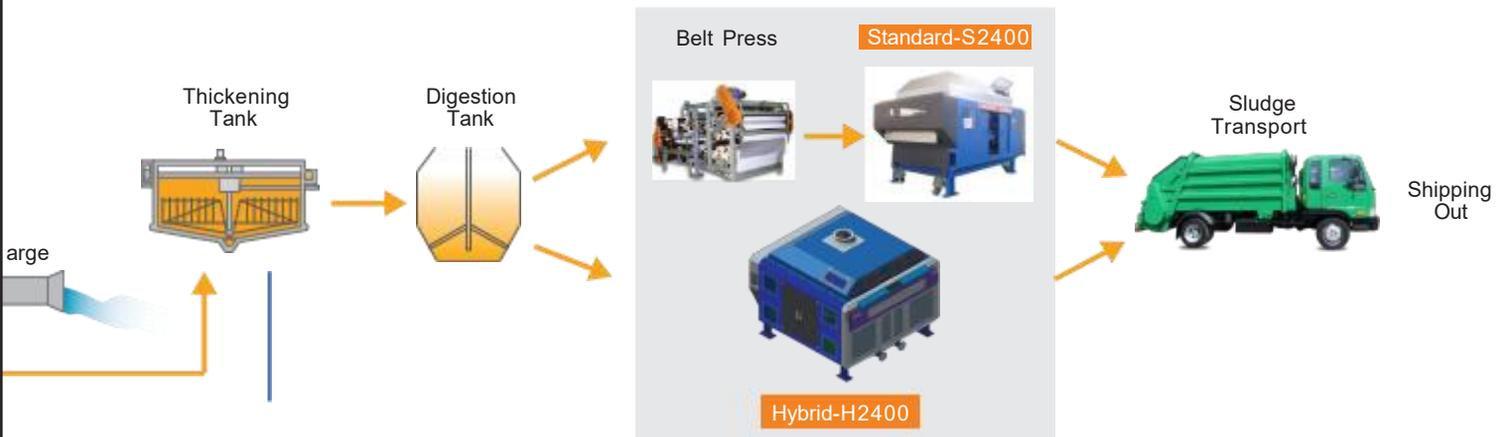


- **Good** applicability and easy space utilization due to combination enablement with existing dehydrator
- **Increased** effect of reducing disposal/transportation costs by reduced sludge weight
- **Easy** maintenance, management and operation
- **Usable** by being installed at a rear end of primary dehydrator

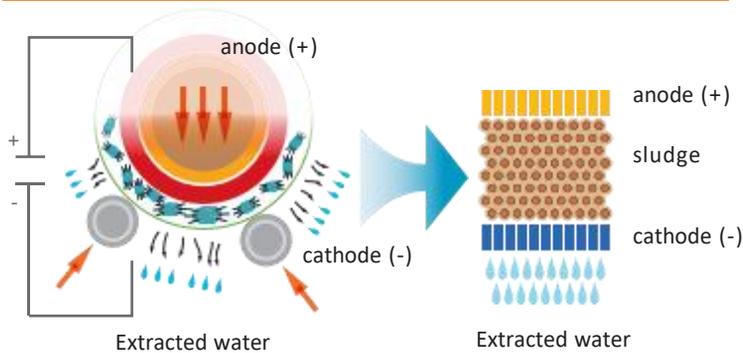
specification & standard

Classification	Contents
Name	Standard-S2400
Subject of dehydration	Sludge (80wt%)
Total moisture content after dehydration	Around 60wt%
Belt width	2,460 mm
Disposable quantity (ton/hr)	0.8~1
Consumed electric power	150kw
Standard (mm)	3,354×3,510×3,204

Sludge Treatment Process



Principle of Electro-osmosis dehydrator



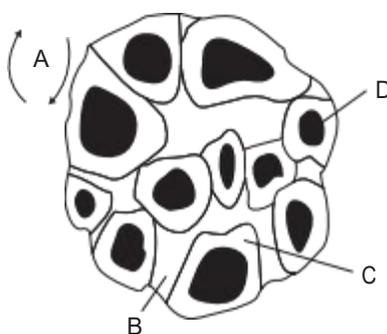
Electric Dehydration, a technology of new concept configured to separate moisture in sludge using electric principle, is an excellent technology capable of manufacturing sludge cake of 60wt% total moisture content by separating even the internal water by utilizing electro-osmosis phenomenon, electrophoresis and Brownian motion, in comparison with the manufacturing of cakes of 78~85wt% total moisture content that is removed only with sludge external water by mechanical dehydration using pressure and centrifugal force from belt press and centrifugal dehydrator.

- ※ Electrophoresis : Phenomenon of particles moving by molecular binding of same types of ions during sludge dehydration process
- ※ Brownian motion : Phenomenon of sludge cell membranes being thinned and torn by generation of moving friction heat energy on cells

Correlation between moisture distribution in sludge and dehydration efficiency

Relationship between electrical double layer structure and electric dehydration

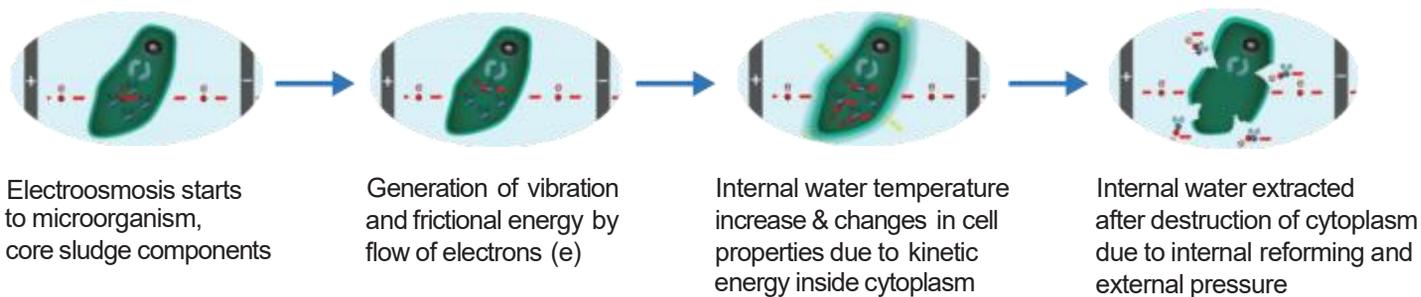
Microorganisms forming the sludge carry (-) charges by protein components, and sludge surfaces are distributed with more (+) charges to form a characteristic electrical double layer structure. Moisture inside the electrical double layer receives electromagnetic force in addition to general forces and has limit in being dehydrated by mechanical methods. However, the ScaraBug electric dehydration method is an epoch-making technology capable of removing moisture inside an initial double layer by affecting to electromagnetic fields..



Classification	contents	Dehydratable?
A: free water	Naturally dryable moisture	Dehydratable by belt press
B: pore water	Moisture mixed with cohesive agents	Dehydratable by electric dehydrator
C: External water	Moisture superficially attached with microorganism	Can dehydrate with existing Primary dehydrator
D: Internal water	Moisture contained in cytoplasm	Can remove with electric dehydrator

※ Surface water/bound water impossible to be dehydrated by existing primary dehydrators (belt press, filter press and decanter)

Cytoplasm-destructing process by electric phenomenon



Weight Reduction Rate in Total Moisture Content before and after Application of Electro-osmosis Dehydrator

SPECIFICATION

Model	Inpitted total moisture content / discharged total moisture content	70wt%	65wt%	60wt%	55wt%
		Hybrid type	98wt% 95wt% 90wt%	93.3% 83.3% 66.7%	94.3% 85.7% 71.4%
Standard type	85wt% 80wt%	50% 33.3%	57.1% 42.9%	62.5% 50%	66.7% 55.6%

Sludge Comparison State before and after Dehydration



KOREA TURBO INC. \ Status of Certification



Green technology

Green energy

Low-carbon green growth



KOREA TURBO INC.

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