BLUEWIN

a Family Group of
Fine Inc.
Royal Precision Ind. Co., Ltd.

For Humanity,
For Society,
For Clean Earth Environment...

By *Green Advanced Technology*
Dynamic venture company

CONTENTS INDEX

CHAPTER-I :

FINE ELODE: Electro Osmosis Dewatering M/C

CHAPTER-II

ROYAL-DECANTER, THICKENER, BELT-PRESS : Mechanical Dewatering M/C

CHAPTER-I

FINE-ELODE

REMARKABLE SLUDGE DEWATERING

- World NO Competitor !!

- *30%wt (70%ds) Guarantee!* *(For most of WWTP Sludge)*
- *0.25kWh/liter water removed!* *(Lowest Energy Consumption)!*
- *12months Recovery of Investment (Faster ROI)*
- *World Lowest Operating Expenditure!*
- *World Lowest Capital Expenditure!*

MOVIE

Click here to see FINE-ELODE operating;
“Full Operating BELTPRESS+FINE-ELODE”

(주)화인
FINE Inc.

Electro-Osmotic Dehydrator
ELODE®

(주)화인 FINE Inc.

Electro-Osmotic Dehydrator ELODE®

Remarkable Dewatering system
70% Volume Cut-Down
Reborn to Renewable Energy

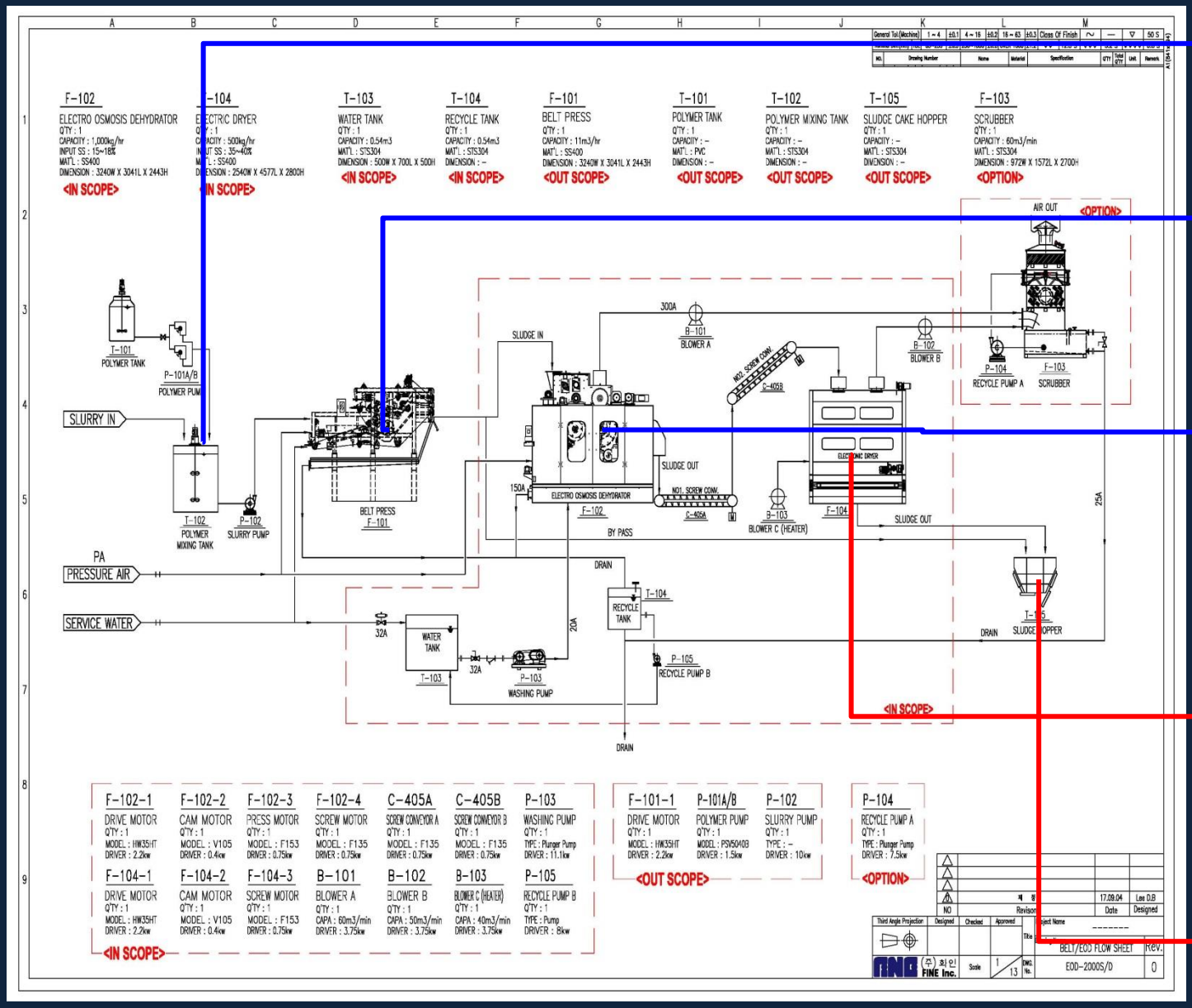
30 years Know-How for Sludge Dewatering

Belt Press

FINE-ELODE+NVD

Electro-Osmotic Dehydrator

To Get 70%~90%ds FLOW SHEET



Input 1-5%ds

1st Dewatered by Mechanical Machine as Beltpress, Decanter, Filterpress, Screwpress

Input 15~20%ds 2nd Dewatered by ELODE

Input 40~50%ds 3rd by NVD (Natural Ventilation Dryer)

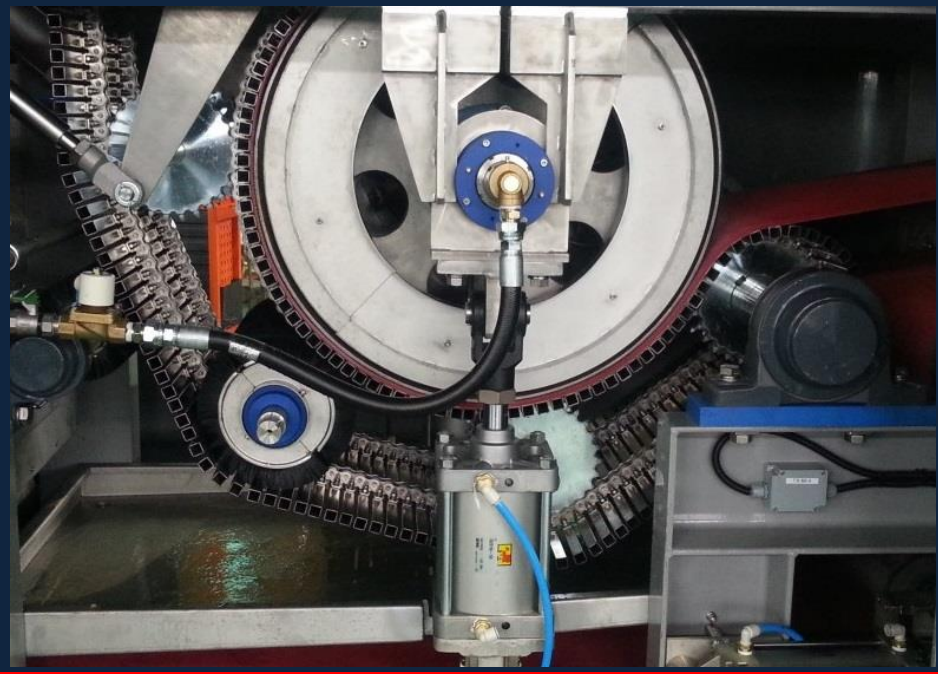
Final Output 70~90%ds

What is FINE-ELODE?

FINE-ELODE = ELECTRO OSMOSIS DEWATERING EQUIPMENT

The world first "Field Proven" commercialized electro osmosis dewatering device which treat almost all types of Organic wastewater,

- Municipal sewage
- Paper mill
- Food & beverage
- Livestock
- Dyeing & painting
- Chemical
- Fishery
- Etc…



Why FINE-ELODE?

The "Deficiency" of present available equipment

Conventional Dewatering Devices

- Only extract the free water contained in the liquid sludge, limited to ~25%DS in sludge cake.
- Cannot extract the remaining of absorbed water.

Thermal Dryers

- High capital
- High energy consumption

FINE-ELODE

① Extract both "Free & Absorbed" water

② Cuts typical waste volume in half

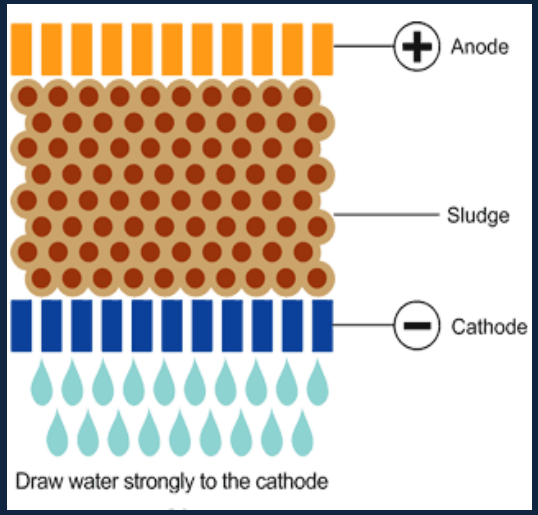
③ Efficiently Achieves >70~90% dry solid

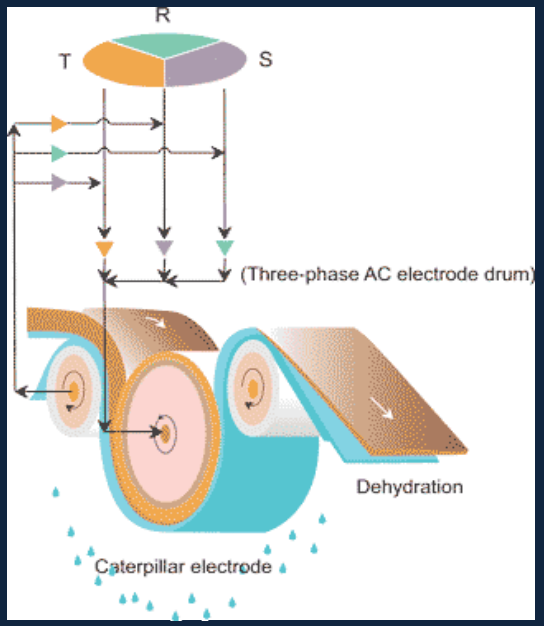
④ Low energy consumption against thermal dryers

How FINE-ELODE works?

Dewatering Method

- Combined actions of **electrophoresis** and **electro-osmosis**
- The sludge cake first goes through b etween the **anode Drum** and the **catho de Carbon**.
- Apply 3-phase DC voltage between t he two electrodes, strongly push the sludge particles (-) toward the anode and water (+) toward cathode.

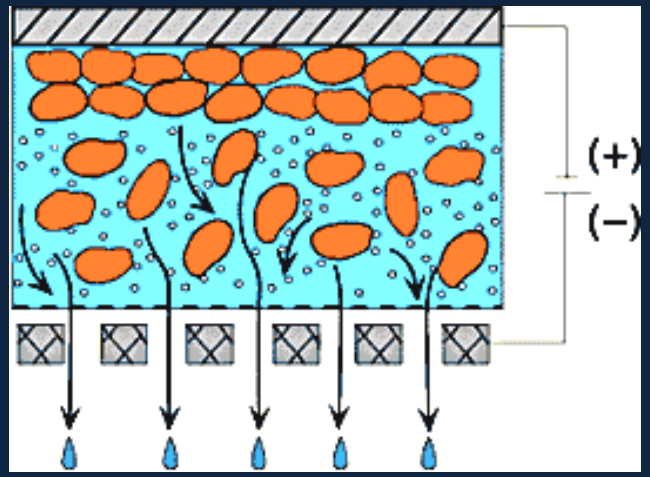




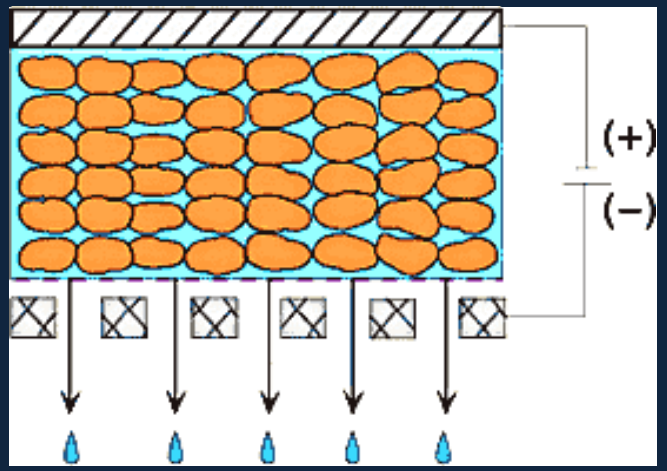
How FINE-ELODE works?

Electro-Osmosis Process of FINE-ELODE

1. **Early Electro-Osmosis, Electrophoresis**
   - **Strongly push sludge particles (-) to anode (+) by an electrical potential difference**



2. **Intermediate Electro-Osmosis**
   - **Dehydration through movement of water (+) to cathode (-)**

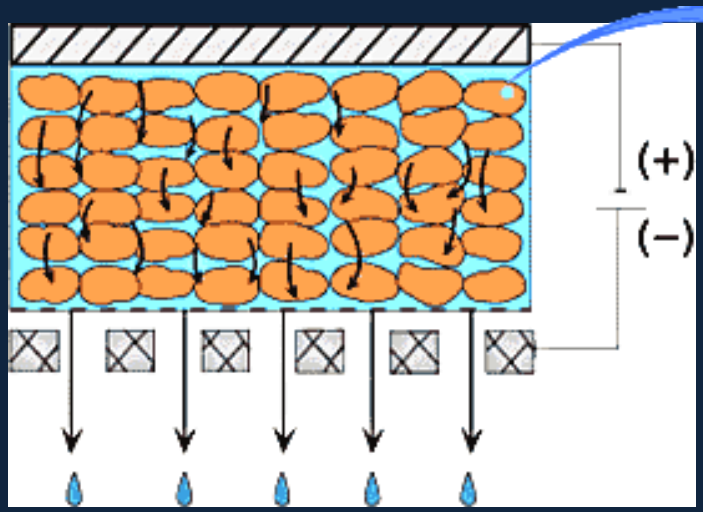


How FINE-ELODE works?

Electro-Osmosis Process FINE-ELODE

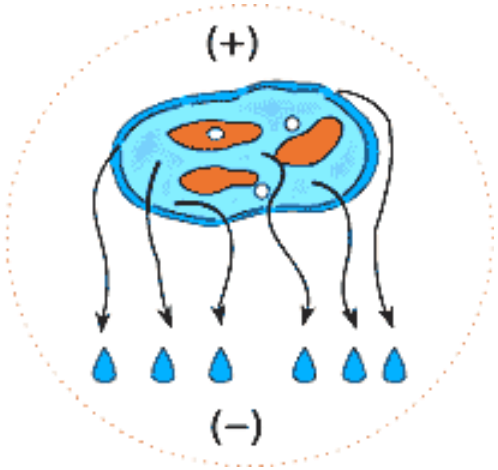
3. **Final Electro-Osmosis Capillary Pressure**

- **Force the absorbed water flow through porous solid to cathode (-)**



Destruction of Cell Membrane

- **Destruction of cell membrane discharge the absorbed water of sludge**



The FINE-ELODE Machine

EODS-
SINGLE FINE-ELODE

- 2nd stage of dewatering
- Retrofit to existing conventional dewatering device

EODB –
BELT-PRESS BUILT-IN FINE-ELODE

- New Setup
- Integrate 1st & 2nd stage dewatering into one machine

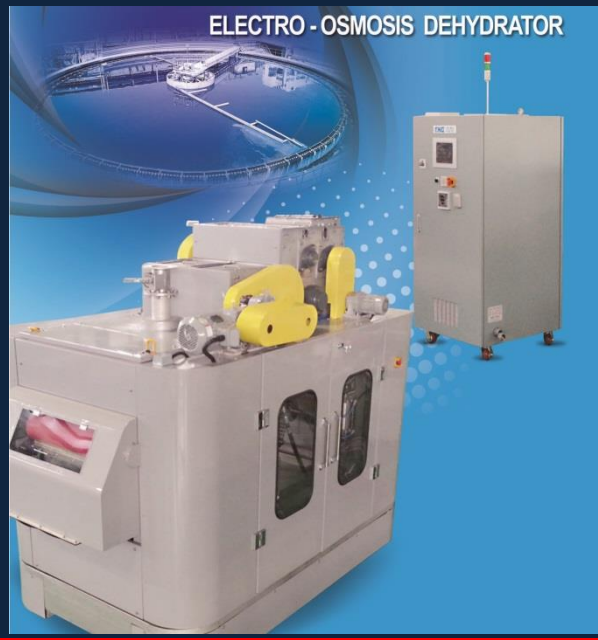
EODS – Single FINE-ELODE

Specification

Dimension (m) L x W x H	Model	Belt With (mm)	Thought put @ 15% DS (kg)	Energy Consumption (kw/h)
2.7 x 0.6 x 1.5	EODS-50	500	250	40~60
2.7 x 1.6 x 1.5	EODS-100	1,000	520	80~120
2.8 x 2.6 x 1.6	EODS-200	2,000	1,040	140 – 160
2.9 x 3.6 x 1.7	EODS-300	3,000	1,560	190 – 220

Typical Examples with SELO

Dryness (% DS)	Wet Ton (Unit)	Improvement (Weight Reduction)
18% → 42%	100 → 43	57%
22% → 45%	100 → 49	51%



Note : Input sludge must be > 6% DS
: Optimal sludge condition for FINE-ELODE processing is with conductivity of 2000 μs – 8000 μs

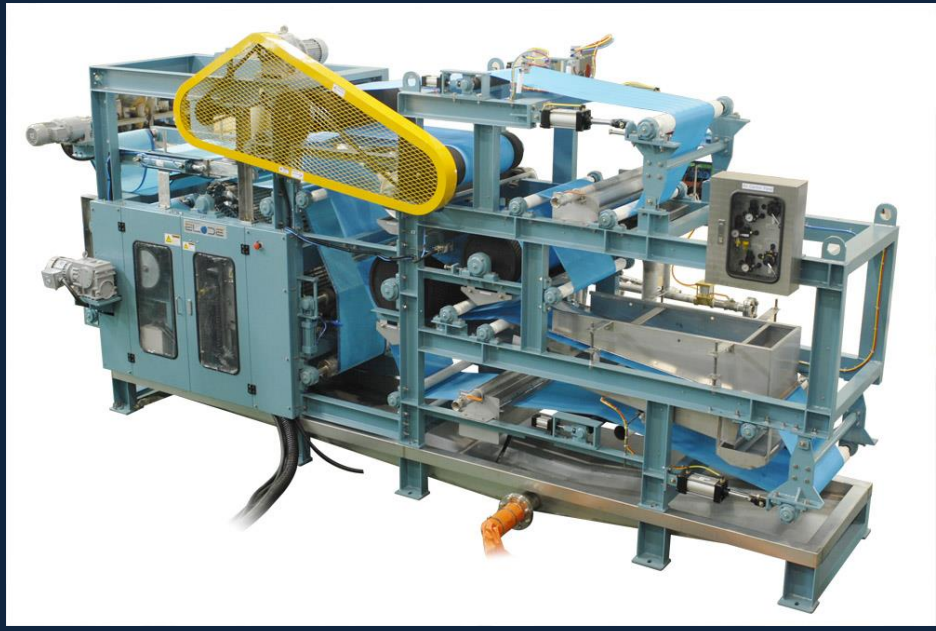
EODB – Belt-Press Built-In FINE-ELODE

Specification

Dimension (m) L x W x H	Model	Belt With (mm)	Thought put @ 1% DS (kg)	Energy Consumption (kw/h)
4.48 x 1.35 x 2.38	EODB-100	1,000	7,800	80 – 120
4.58 x 2.56 x 2.38	EODB-200	2,000	15,600	140 – 160
4.58 x 3.86 x 2.38	EODB-300	3,000	23,000	190 – 220

Typical Example with BELO

Dryness (% DS)	Wet Ton (Unit)
1% → 45%	100 → 2.22



Note : Optimal sludge condition for FINE-ELODE processing is with conductivity of 2000 μs – 8000 μs

FINE-ELODE Improves Environment

Sludge mixed with Polymer (Influent)

1% - 5% DS

1% - 5% DS

EODB

Mechanical dewatering devices
(Belt press, Filter Press, Thickener, Centrifugal, Decanter ,etc)

15% - 25% DS

15% - 25% DS

EODS

Huge Dryer

BDS, DDS, FDS

Legend

→ - High energy consumption
- High operating cost

→ - Low energy consumption
- Low operating cost

40% - 60% DS

40% - 60% DS

NVD(Natural Ventilation Dryer)

70% - 90% DS

70% - 90% DS

For final disposal-Incineration, Agriculture, Landfill, Renewable Energy etc.,

FINE-ELODE Cuts Disposal Cost

Typical municipal sewage sludge

Example : Sludge concentration : 1% DS (99% wt)

Sludge weight : 1,000 ton daily

Mechanical dewatering device

(Belt-Press, Filterpress, Centrifugal, Screwpress, Decanter, Thickener-Dewatering, etc.,)

EODS

Sludge concentration	: 70% DS (30% wt)
Sludge weight	: 14.27 ton
Est. Disposal cost	: USD 1,142
Est. Electricity cost	: 7,920 kW x USD 0.15
	= USD 1,188
Est. Total cost	= USD 2,330

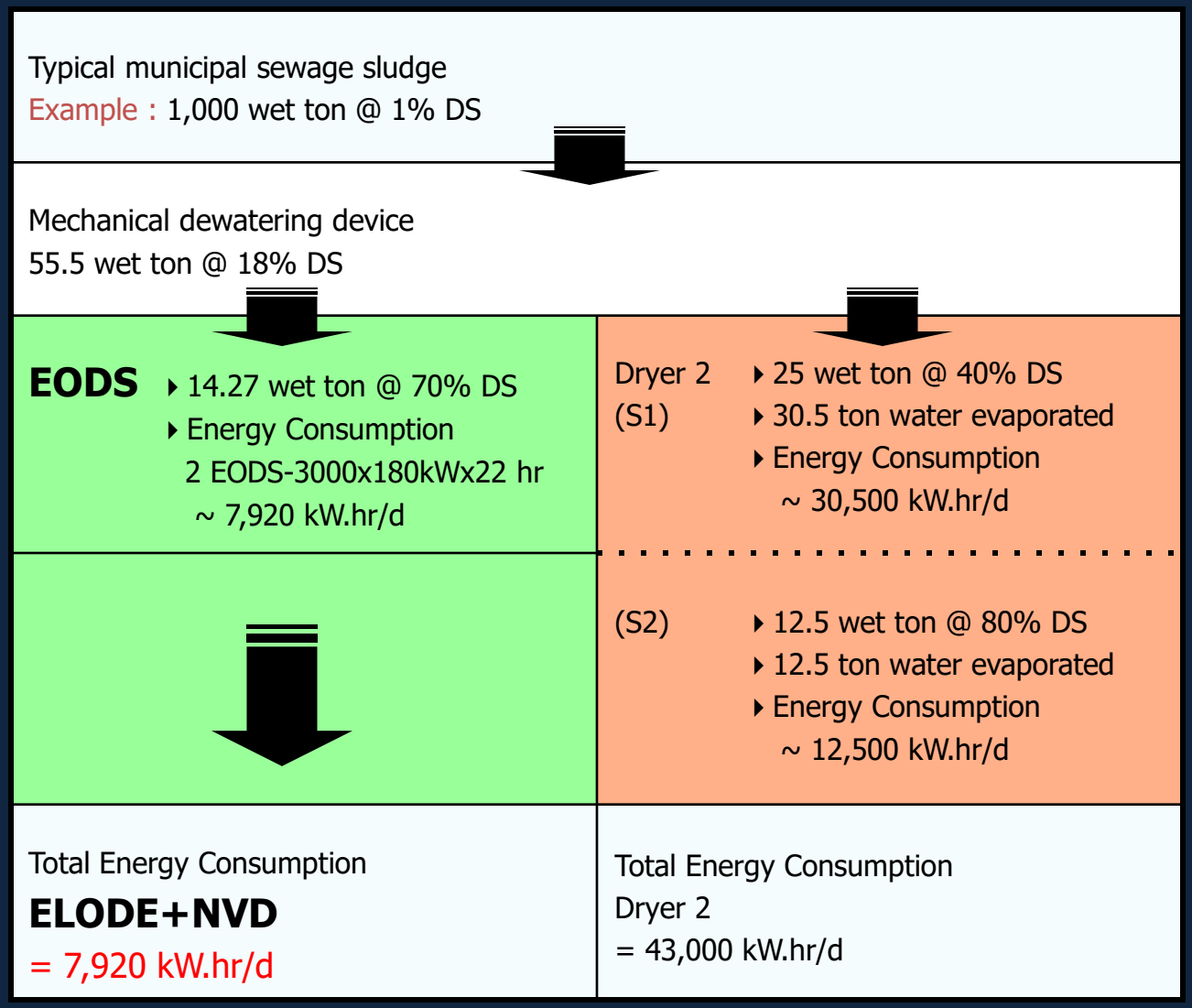
Sludge concentration	: 18% DS (82% wt)
Sludge weight	: 55.5 ton
Est. Disposal cost	: USD 4,440

Reduction in waste sludge	= 41.23 ton (74%)
Cost Saving	= USD 2,110 daily
Annual Saving	= USD 633,000

Assumption

Sludge disposal cost	= USD 80 / ton	Electricity tariff = USD 0.15 kW.hr
Working Hour	= 22 hrs / day	EODS-3000 = 2 units
	= 25 days / month	Energy Consumption = 180 kW / machine

FINE-ELODE Reduces Energy Consumption



Dryer 2 (S1) – EODS
= 35,080 kW/d
82% Saving in Energy Consumption

Assumption
1 ton of water evaporated
Required 1,000 kW.hr
(Ave. 750 – 1,200 kW.hr)

Features & Benefits

1. **High dryness (reduce water level 20%+)**

Significant reduction in disposal cost
- **Facilitates storage**
- **Transportation using standard vehicles**
- **Reduce costs of incineration**

2. **Reduce final cake to half (70%+Reduced)**

Significant cost reduction in
- **Transportation**
- **Landfill disposal**
- **Enable energy recovery**

3. **Low energy consumption compared to dryers (70%+ Saved)**

Minimum operating cost
- **Use less electricity, high energy efficiency**

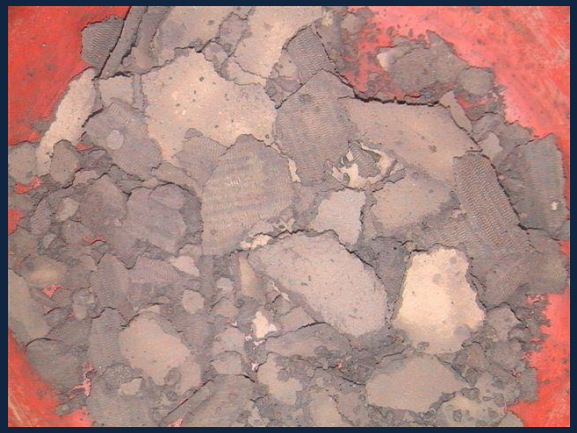
Features & Benefits

4.	Universal and compatible	Easily integrated into existing mechanical dehydrators
5.	Compact in size	Reduction in infrastructure cost
6.	Field tried and tested for more than 2 years	Minimum production lost • Reliable, superior quality and performance • Potential polymer reduction
7.	Fully automated, easy to use and less maintenance	Minimum operating cost • Less operation supervision • Easy parts accessibility for maintenance

PERFORMANCE (NON-NVD)

Result of Final Cake Out for each Different Sludge

Municipal Sludge 57%wt



Chemical Sludge 53%wt

City Bio Sludge 55%wt

Livestock Sludge 52%wt

High Organic Dyeing 48%wt

Municipal+Excreta 51%wt

PERFORMANCE (NON-NVD)

Result of Final Cake Out for each Different Sludge

Industrial Oil Sludge 52%wt

Soy Bean Sludge 53%wt

Organic Mineral 55%wt

Pharmaceutical Sludge 48%wt

Milk Sludge 58%wt

Human Excreta 43%wt

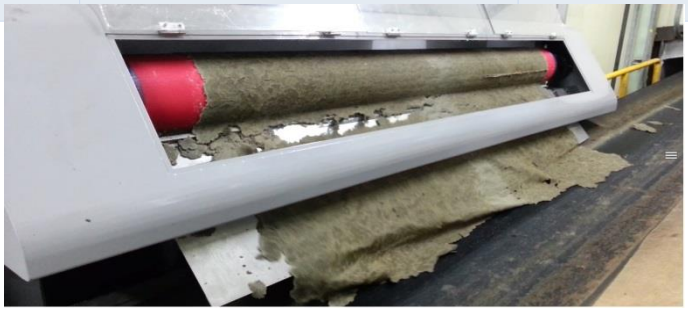
RESULT : Average Reduced Volume (NON-NVD)

Before : 14%DS (86%WT)

After : 52%DS (48%WT)

61.3% Out-Cake volume reduced!

DETAIL DATAS (NON-NVD)

CLIENTS	DuPont Inc. Korea		Remark
Model	FINE-ELODE: EODS-150, 1.5meter Belt Width		Main Process machine
Running Start	November, 2013		
Operating term	3.2 years		
Site Location	Ulsan. Korea		
Sort of Sludge	High Organic Chemical Sludge		
Sludge Characteristic	Very difficult high organic sludge		Impossible at existing FINE-ELODE
1st Machine & Input DS%	Beltpress 88%wt ±2%		
Daily Throughput	700kg x 5hours = 3.5ton		
Result of Before & After	Before (88%wt)	After (64%wt)	2.34tonx300days=702ton reduced. **x$150 = Yearly U$105,300 SAVED**
	3.5ton/day	1.16ton	
	Reduced 66.85%	Daily 2.34ton Reduced	
Refer-Photos			
Electric Consumption	Average : 120~140kWh		
Electric-Consumption vs Dehydrated	**Dewatering discharged/hr : 468liter, Max 140kW = 0.299kWh**		**General Dryer: 0.9~1.1kW/liter**

DETAIL DATAS (NON-NVD)

CLIENTS	SONGWON INDUSTRIES. Korea		Remark
Model	FINE-ELODE: EODS-300, 3.0meter Belt Width		Main Process Machine
Running Start	December 2013		
Operating term	3.1years		
Site Location	Ulsan city. KOREA		
Sort of Sludge	High Organic Sludge		
Sludge Characteristic	Non-Dewaterable sludge with high conductivity of 15,000㎲.		impossible at existing FINE-ELODE
1st Machine & Input DS%	Multiple discs Press 83%wt ±3%		
일일 처리량 / Daily Throughput	1000kg x 20hours = 20ton		
FINE-ELODE 후 감량률 및 결과 Result of Before & After	Before (83%wt)	After (65wt)	10.3tonx300days=3,090ton reduce dx$170 = **Yearly U$525,300 SAVED**
	20ton/day	9.7ton	
	Reduced 51.5%		
참고사진 Refer-Photos			
Electric Consumption	Average : 80kW~120kWh		
Electric-Consumption vs Dehydrated	**Dewatering discharged/hr : 515liter, Max 120kW = 0.27kWh**		**General Dryer: 0.9~1.1kW/liter**

DETAIL DATAS (NON-NVD)

CLIENTS	EXPORT TO JAPAN		Remark
Model	FINE-ELODE: EODS-50, 0.5meter Belt Width		PILOT Machine
Running Start	March, 2014		
Operating term	2.9 years		
Site Location	Japan night soil Treatment Plant		
Sort of Sludge	Organic Municipal Sludge		
Sludge Characteristic	90% high organic Night Soil, 10% city sludge		
1st Machine & Input DS%	DECANTER 80%wt ±5%		
Daily Throughput	200kg/hr x 12 hours = 2.4ton		
Result of Before & After	Before (80%wt)	After (57%wt)	1.24tonx300days=372ton reduced x$180 = **Yearly U$66,960 SAVED**
	2.4 ton/day	1.16ton	
	Reduced 53.48%	Daily 1.24ton Reduced	
참고사진 Refer-Photos			
Electric Consumption	Average : 40kW~60kWh		
Electric-Consumption vs Dehydrated	**Dewatering discharged/hr : 103liter, Max 60kW = 0.58kWh**		**General Dryer: 0.9~1.1kW/liter**

MOVIE

Click here to see FINE Group; link to U-Tube

MOVIE

Click here to see FINE-ELODE operating;
“DuPont Korea Plant”

COMPANY PROFILE

SUMMARY

Group Company Name	**BLUEWIN, FINE INC, ROYAL PRECISION IND. CO., LTD.**		
BOM	Mr. LEE SANG JUN(Korean)/CEO & President Mr. PARK JAE DUCK(Korean)/CEO & President Mr. KIM SUN GUK (Korean)-President Mr. ANTONIO KIM (Korean)-CEO & CMO		
Established	SEPT, 15, 1989		
Main Item & Business Fields	■ **SLUDGE DEWATERING SYSTEM** - ELODE : Electro Osmosis Dehydrator 60%ds Guarantee - DECANTER, CENTRIFUGE Mechanical machine - BELT-PRESS, SPECIAL VALVE ■ **TOP DOWN NANO TECHNOLOGY.** - NANO CALCIUM, NANO POWDER for All Kinds of Natural materials use for Health supplement & Medicine.		
Marketing Headquarters	Baeksan Bldg, 157 street, Jungnung-Dong, Seongbuk-Gu, SEOUL. KOREA.		
Capital Fund	US$3.2mil	**Turnover**	US$68.2mil/2016’
Employee	181 staffs / 2017’ present		
Official line	Tel: +82.70.7868.8920 / Fax:+82.2.912.4438 E-mail: antoniokim65@gmail.com / www.BLUEWIN.kr		

FINANCIAL STATE

Setting day-Validity Period :Dec/31/2015~Apr/22/2017

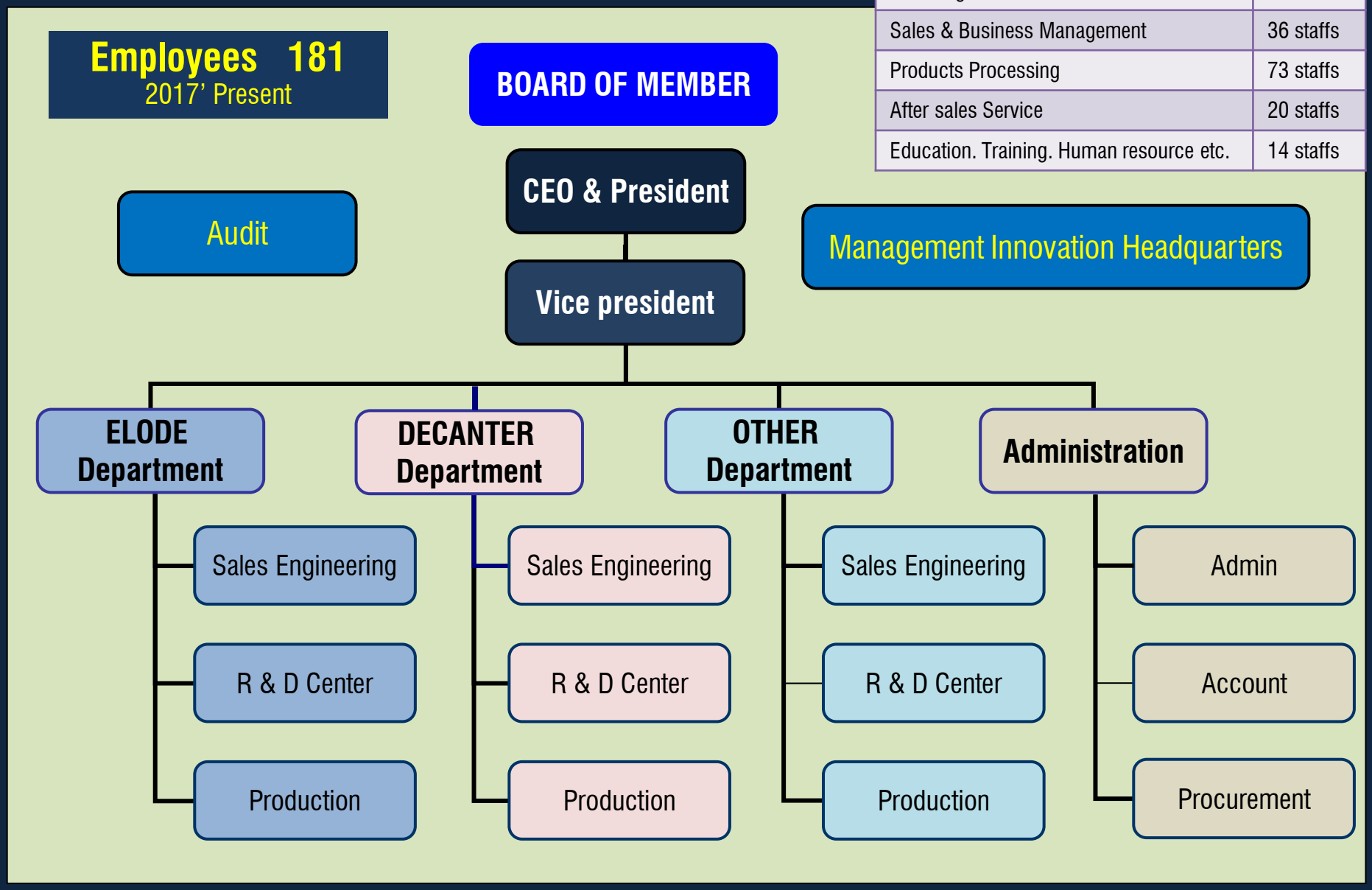
Financial standing for past 3years	• Credit standing: BBB- • Cash Flow : CF2(B) • Turnover: U$68.2mil/year ave.
Bank Information	• Industrial Bank of Korea • KOREA.

Credit Rating Authorized Agency

NICE평가정보 주식회사
NICE Information Service Co., Ltd.

ORGANIZATION

R&D Engineers	38 staffs
Sales & Business Management	36 staffs
Products Processing	73 staffs
After sales Service	20 staffs
Education. Training. Human resource etc.	14 staffs



PATENTS

SORT	NAME OF PATENT	REGISTERED NO	DATE	ITEM
TRADE MARK	FINE	#40-0701110	2007.03	Trade Mark
TECHNICAL PATENTS	PIN-TUBE MFG-PROCESSING DEVICE	#10-0612624	2006.08	F.A.
	WATER-OIL SEPARATOR	#10-0697688	2007.03	SEPARATOR
	WASTE SLUDGE RECYCLE DEVICE	#10-0947465	2010.01	DECANTER
	SLUDGE PROCESS OF FINE-ELODE	#10-1045151	2011.06	FINE-ELODE
	SCM-SPECIAL RUBBER MFG-PROCESSING	#10-1076740	2011.10	SCM FILM
	CATHODE & ANODE DRUM OF FINE-ELODE	#10-1070296	2011.10	FINE-ELODE
	PERMEABILITY RUBBER SHEET MFG-PROCESSING	#10-1089592	2011.11	SCM FILM
	RUBBER SHEET FOR SHOE MFG-PROCESS	#10-1129702	2012.03	SCM FILM
	SLUDGE PROCESS OF FINE-ELODE	#10-1156498	2012.06	FINE-ELODE
	DIGITAL CONTROLLING CIRCUIT AND SYSTEM OF FINE-ELODE	#10-1172365	2012.07	FINE-ELODE
	APPARATUS FOR INPUTTING VOLTAGE OF FINE-ELODE	#10-1171730	2012.07	FINE-ELODE
UTILITY PATENTS	RUBBER FILM FIBER & OTHERS	3 different kinds	-	SCM FILM

※Yellow text is FINE-ELODE System

CERTIFICATE

ARTICLES	AUTHORIZED BY	REGISTERED NO.
R&D CENTER of FINE INC.	KOREA INDUSTRIAL TECHNOLOGY ASSOCIATION	#20084189
WORLD CLASS PRODUCTS	MINISTRY OF KNOWLEDGE ECONOMY	#2008-310
GREEN TECHNOLOGY	MINISTRY OF ENVIRONMENT	#GT-12-00173
INNOVATIVE S.M.E (INNO-BIZ)	SMBA	#R2021-524
ISO9001 QUALITY MANAGEMENT SYSTEM	SMBA CENTER	D 152-211
ISO14001 ENVIRONMENT MANAGEMENT	CRS	EMS-0080
LEADING COMPANY FOR MACHINERY PARTS & MATERIALS PARTS	MINISTRY OF KNOWLEDGE ECONOMY	#6801
BUSAN-LEADER FOR MACHINERY PARTS & MATERIALS PARTS	BUSAN METORPOLITAN CITY	#2006-2-89
FINANIAL A^+ MEMBER CLUB	TECHNICAL ASSURANCE FUND (KOREA GOVERNMENT)	#836
CE	Lloyd's Register	KPA 58161
DESIGNATED AS A DEFENSE COMPANY	MINISTRY OF KNOWLEDGE ECONOMY	#196
DEFENSE QUALITY MARK	DEFENSE TECHNOLOGY and QUALITY AGENCY	DTaQ-CDQ-13

AWARDS & PRIZE

Year	Contents
1999	Commendation of SMBA
	Commendation of the National Tax Service
2001	Busan Venture Company Excellence Award (Busan Metropolitan city)
2003	Commendation of Ministry of Science and Technology
2004	Commendation of the Prime Minister
2005	Excellence Prize for Busan Excellent Small Business
2007	Awarded U$3mil export and commendation of KITA
2008	Presidential Citation
	Awarded U$5mil export
2009	Worker-company win-win concession negotiation practice enterprise certification (Ministry of Labor)
2011	Selected as a good company to work in our region (Ministry of Knowledge Economy)
	Busan Employment Grand Prize (Busan Metropolitan city)
	Certified as world-class product of SCM film (Ministry of Knowledge Economy)
2012	Selected as proud Small and Medium Businessman(SMBA)
	Acquired Green Technology Certificate (Ministry of Environment)
	Awarded U$10mil Export
	Awarded Excellence Prize for Busan Export Award (Busan Metropolitan city)
2013	Received the Bronze Tower Order of Industrial Service Merit
	Selected as Excellent Employment Company in Busan
2015	Selected as World Class 300 company
	Awarded Busan Industrial Grand Prize

1st (Head) Factory in BUSAN. KOREA for

- ELODE Manufacturing & Water project fields

CONTACT POINT

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WeChat ID: antoniokim65
WhatsApp ID: 010-9140-9967

We are always ready to reply within 24hours & Serve for you

THANK YOU