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

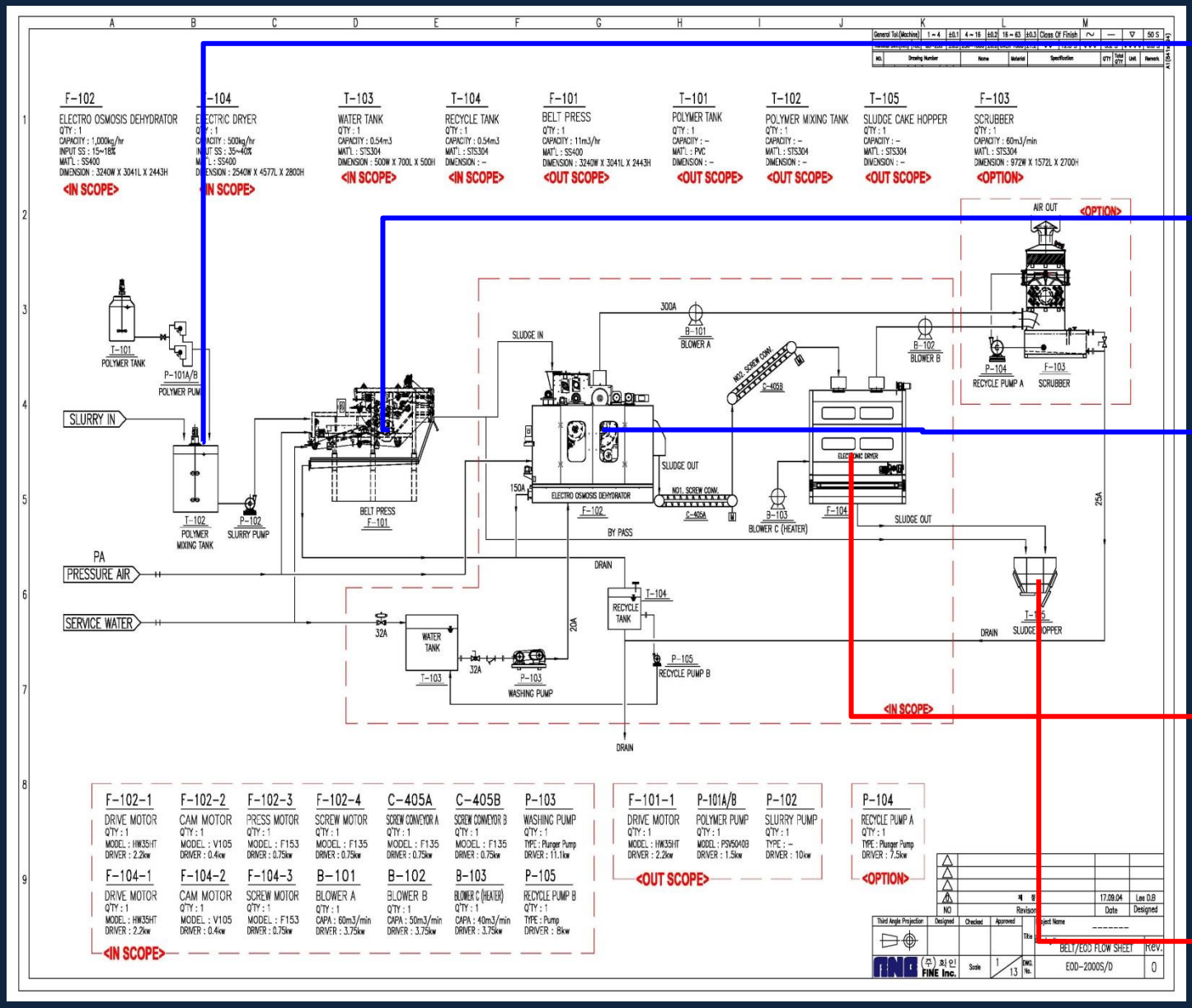
30 years Know-How for Sludge Dewatering

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)

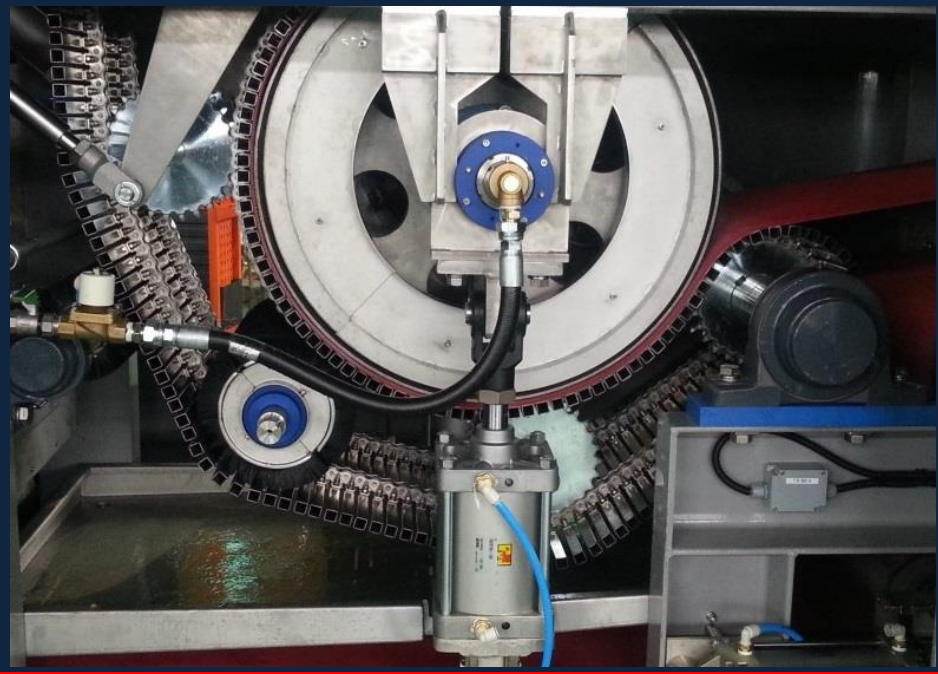
Final Output 70~90%ds

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

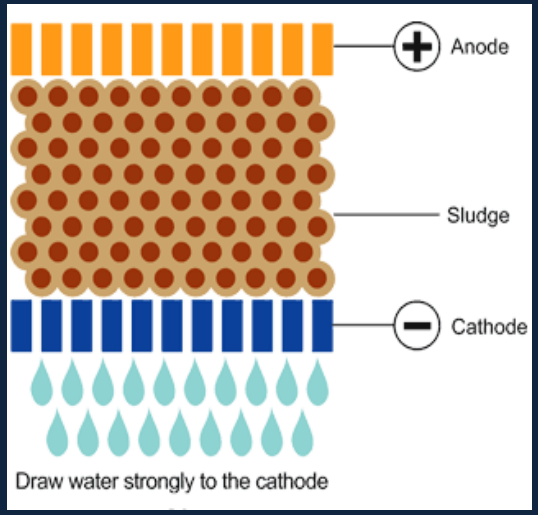
③ Efficiently Achieves >70~90% dry solid

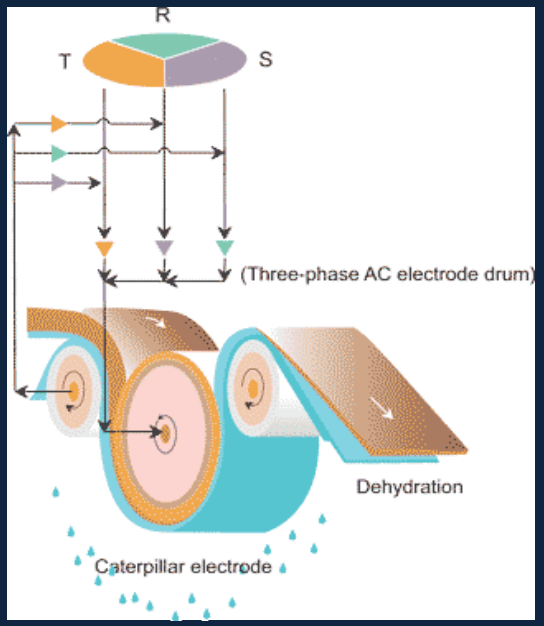
④ Low energy consumption against thermal dryers

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.

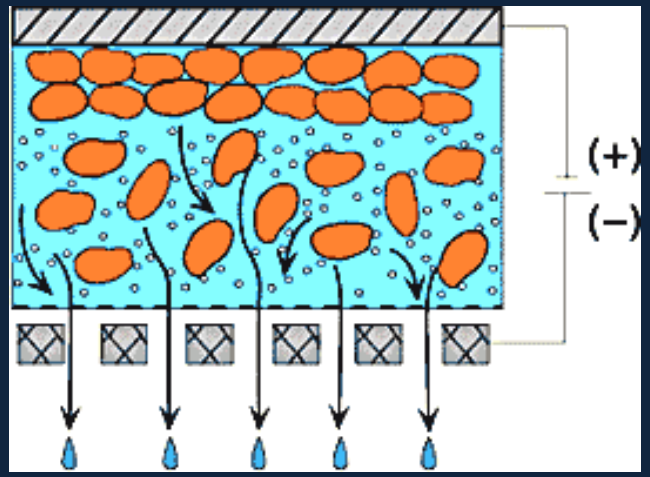




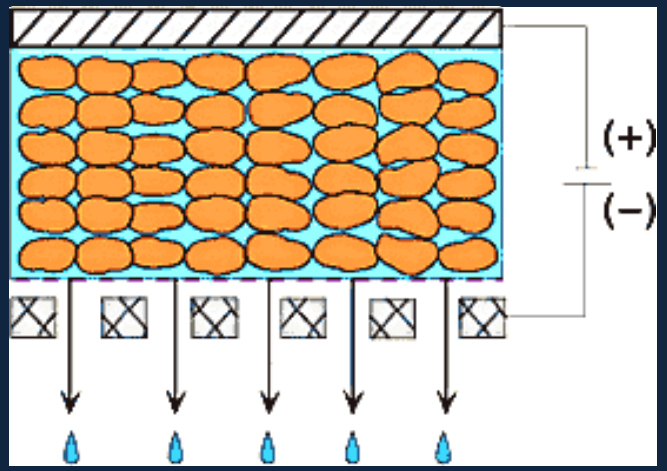
How FINE-ELODE works?

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 (-)**

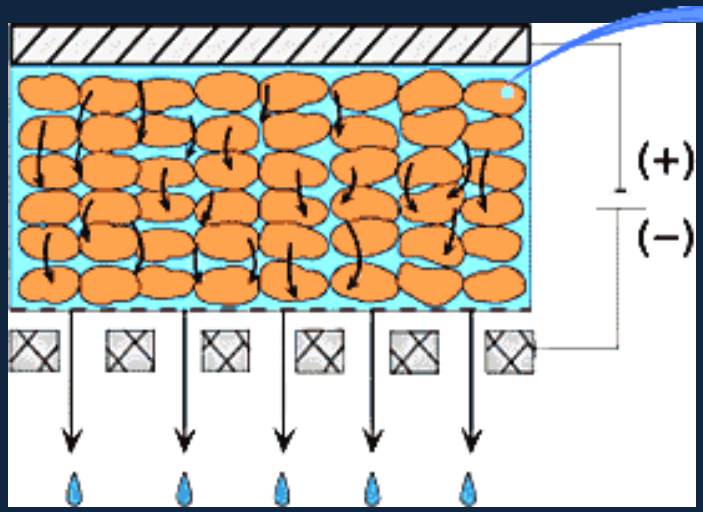


How FINE-ELODE works?

Electro-Osmosis Process FINE-ELODE

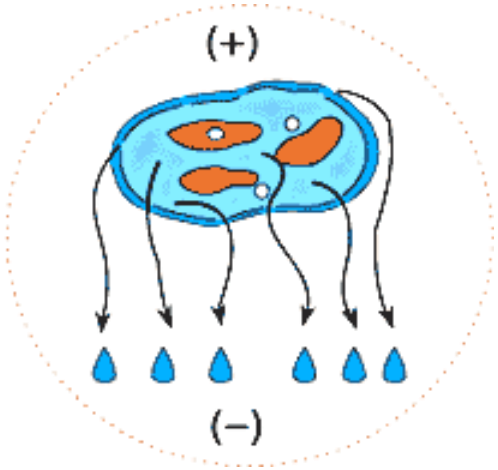
3. **Final Electro-Osmosis Capillary Pressure**

- **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

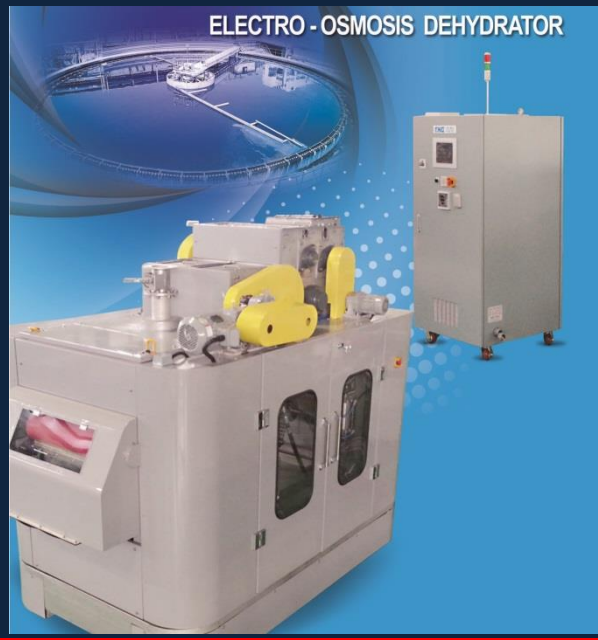
EODS – Single FINE-ELODE

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

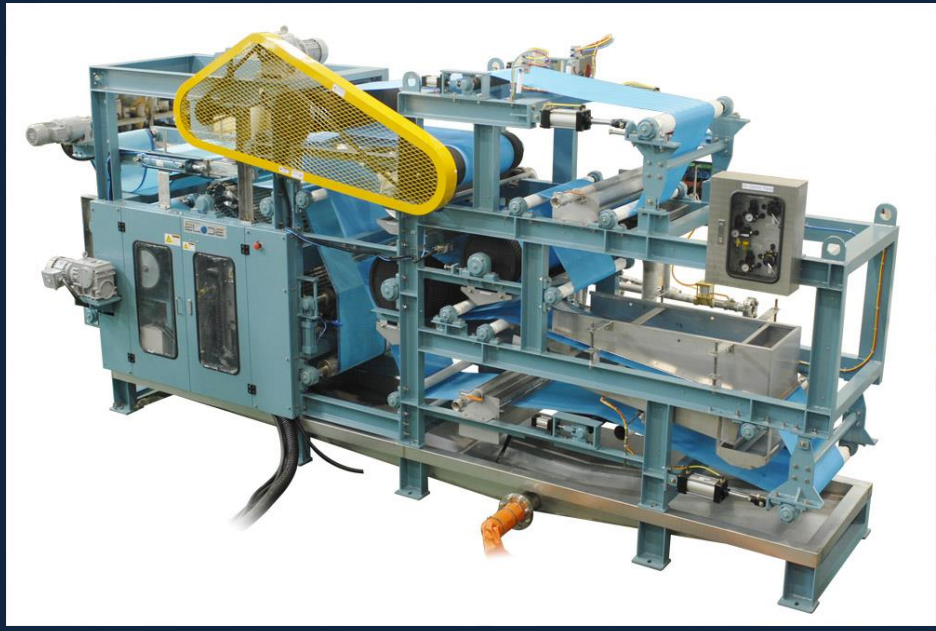
EODB – Belt-Press Built-In FINE-ELODE

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

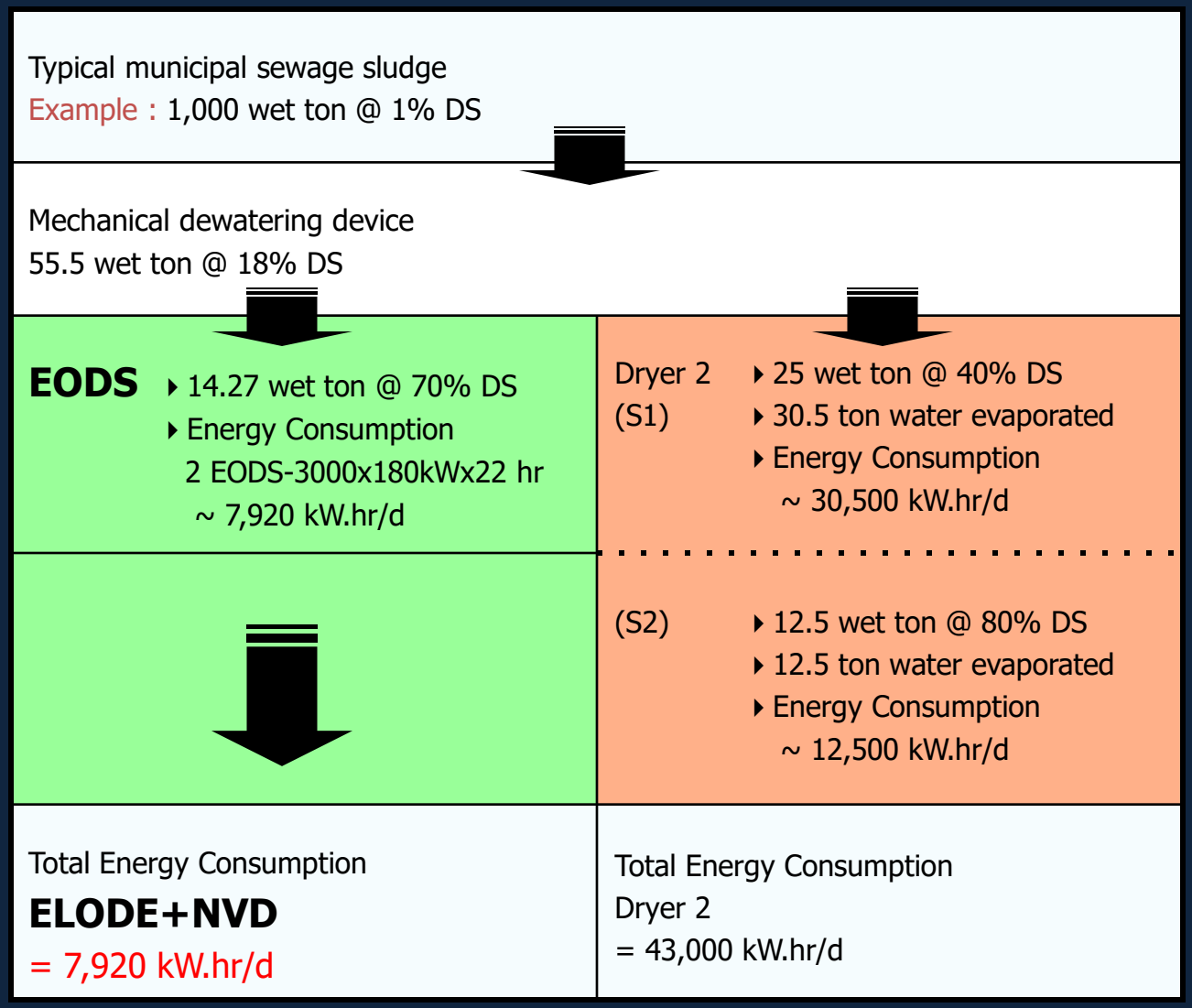
Sludge concentration	: 18% DS (82% wt)
Sludge weight	: 55.5 ton
Est. Disposal cost	: USD 4,440

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**

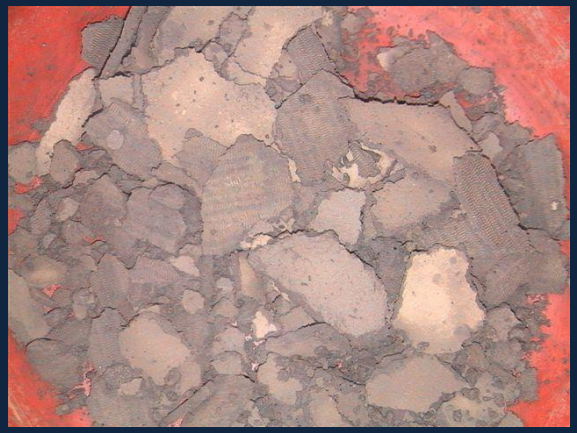
Features & Benefits

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

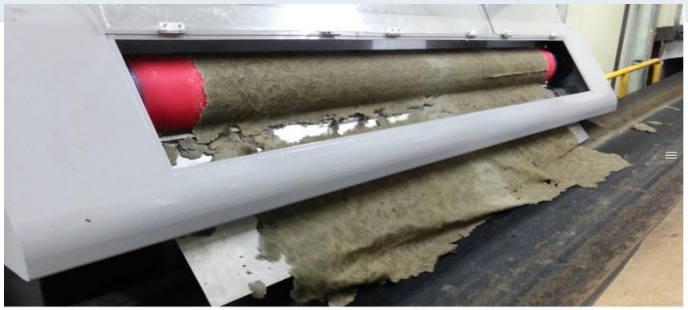
RESULT : Average Reduced Volume (NON-NVD)

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”

CHAPTER-II

ROYAL-DECANTER, THICKENER, BELTPRESS

ROYAL-DECANTER

(주)로얄精工
ROYAL PRECISION IND.CO.,LTD.

ROYAL-VALVE

What we have?

ROYAL-DECANTER
ROYAL-VALVE

30years Accumulated DECANTER & VALVE Manufacturing know-how

More than 3,000units, 1,000 sites References and Field Experience

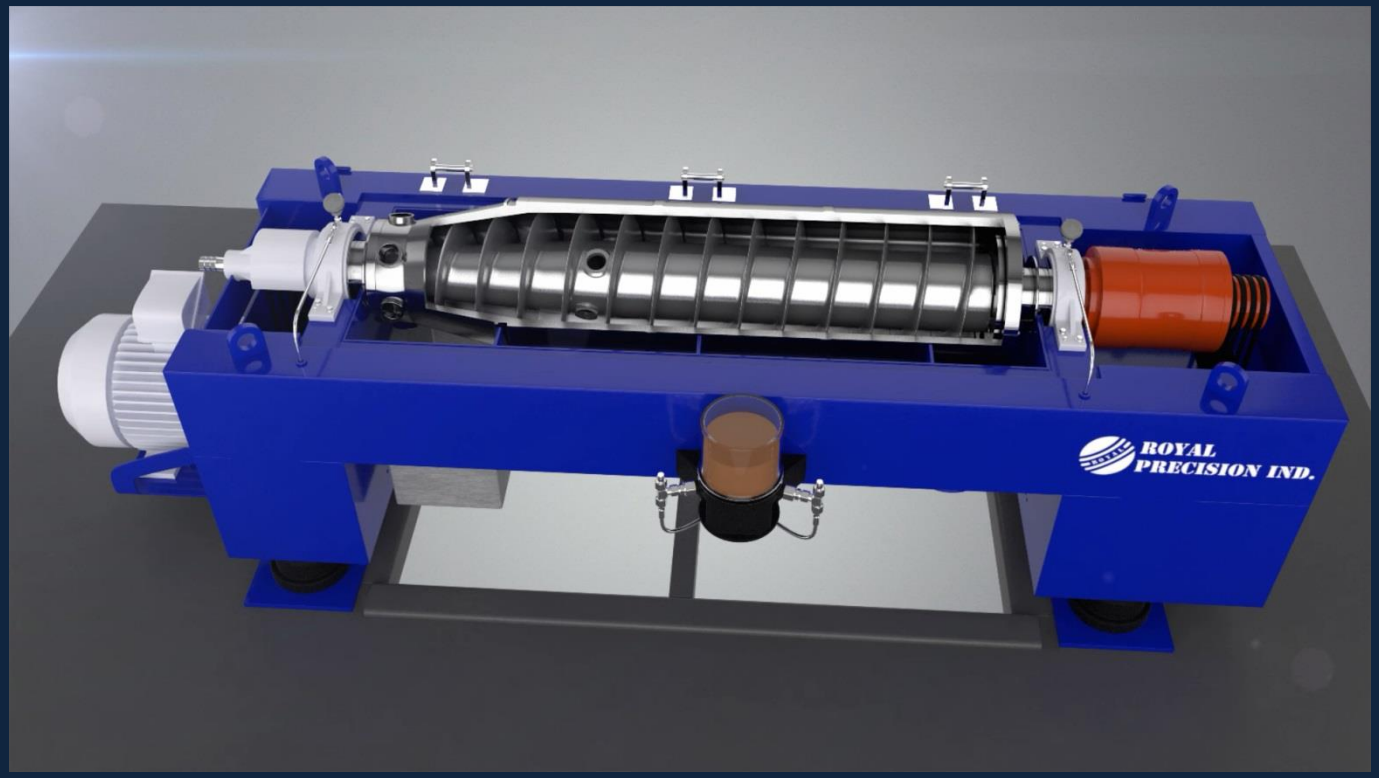
Rapid After sales service, realizing customer impressions

www.korearoyal.com

Sustainable growth enterprise

MOVIE

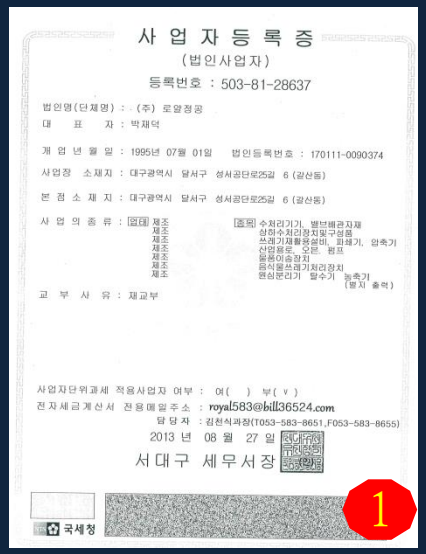
Click here to see the movie “ROYAL”

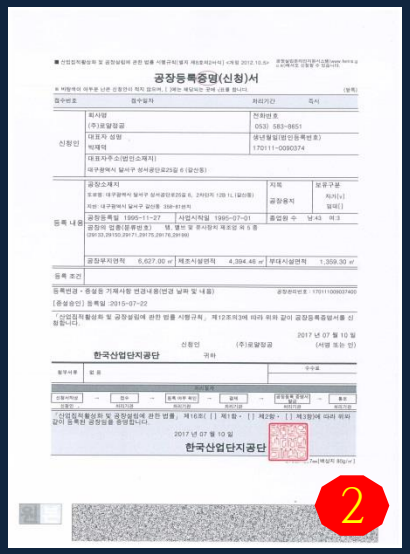


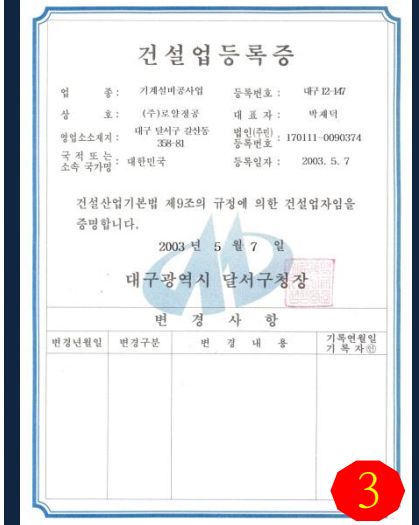
PATENTS

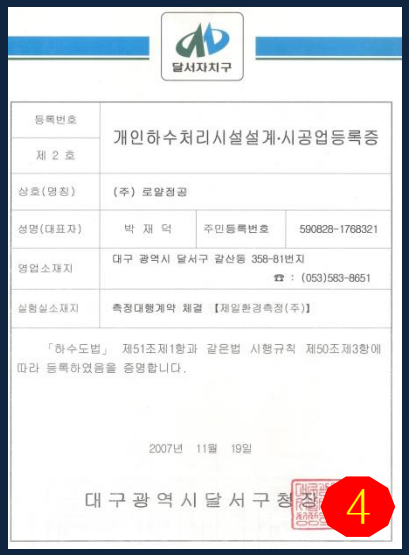
SORT	NAME OF PATENT	REGISTERED NO.
TECHNICAL PATENTS	Screw conveyor for screw decanter type centrifuge with detachable screw wings	#10-1081751
	Centrifuge with multistage controller dam plate	#10-1068577
	With a two-stage accelerated discharge cover formed in a screw conveyor Screw Decanter Type Centrifuge	#10-0977196
	A concentrate having a rotation angle or a cake outlet Screw Decanter Type Centrifuge	#10-0953671
	A screw decanter type centrifugal separator equipped with a plate for noise prevention on the rotating body of the outer shell bolt	#10-0920493
	Centrifuges for industrial, sewage and wastewater treatment Wing end surface hardening method of screw conveyor	#10-0857057
	Horizontal centrifuge for sludge concentration and dehydration	#0407896
	Acceleration / deceleration gearbox unit for two-stage accelerating centrifuge	#0340190
	Automobile decelerators for centrifugal concentrators and dehydrators	#0302832
	Mechanical concentration and dehydrator by centrifugal force	#0251596
UTILITY PATENTS	Screw conveyor of decanter type centrifuge consisting of injection nozzle with directional spray angle	#20-0459173

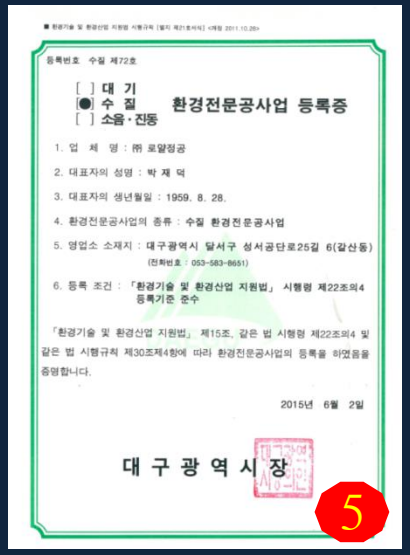
GOVERNMENT LICENSED LICENSE

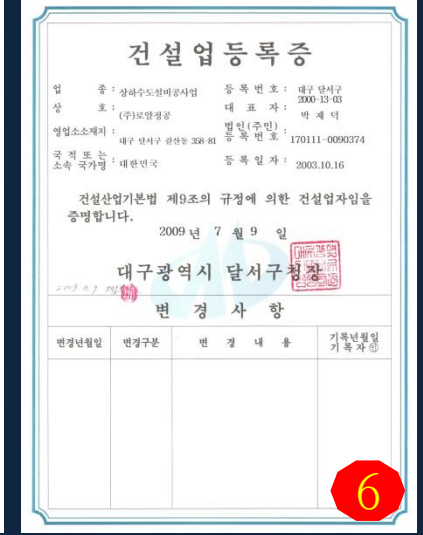








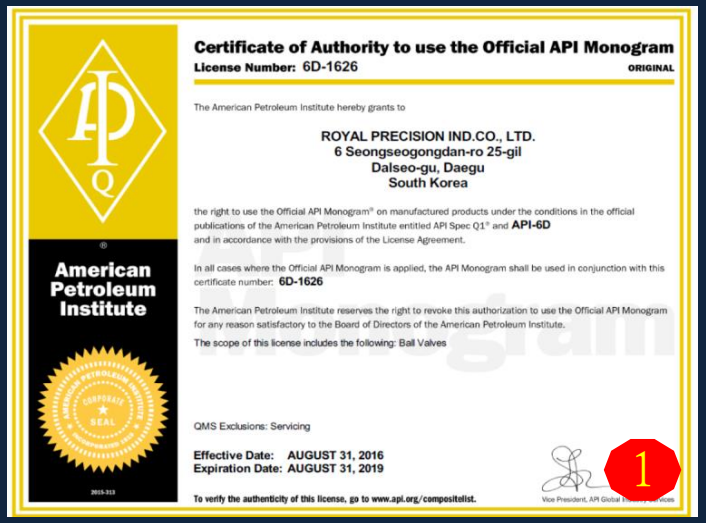




① Business Registration
② Factory registration certificate
③ Registered construction business (machinery equipment field)
④ Registered construction (sewage plant)
⑤ Construction of sewage treatment (design, commissioning etc)
⑥ Environment special construction (water quality)

CERTIFICATE

CERTIFICATE



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American Petroleum Institute

1

제 R120301 - 00009 호

기술혁신형 중소기업(INNO-BIZ) 확인서

업 체 명 : (주)로알정공
대 표 자 : 박재덕
주 소 : 대구 달서구 성서공단로25길 6 (갈산동)
등 급 : A
유효기간 : 2015. 1. 4 ~ 2018. 1. 3

위 업체는 기술혁신형 중소기업 발굴 육성사업에 의해 선정된 기술혁신형 중소기업(INNO-BIZ)임을 확인합니다.

2014년 11월 13일

중 소 기 업 청 장

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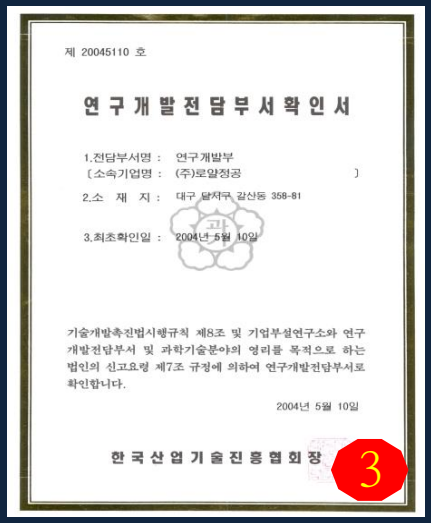


제 20045110 호

연 구 개 발 전 담 부 서 확 인 서

1.전담부서명 : 연구개발부
(소속기업명 : (주)로알정공)
2.소 재 지 : 대구 달서구 갈산동 358-81
3.최초확인일 : 2004년 5월 10일

기술개발촉진법시행규칙 제8조 및 기업부설연구소와 연구개발전담부서 및 과학기술분야의 영리를 목적으로 하는 법인의 신고요령 제7조 규정에 의하여 연구개발전담부서로 확인합니다.

2004년 5월 10일

한국산업기술진흥협회장

3

① API Certificate
② Technology innovation company certificate
③ Research and Development Institute Certificate

④ Certificate of Excellent Product Designation
⑤ Certificate of Excellent Environment Industry
⑥ ISO9001
⑦ ISO14001

우수제품지정증서

지정번호 2012055

제 품 명 : 소음방지용 플레이트를 구비한 스크류 대칭타입 원심분리기
업 체 명 : (주)로알정공
대표자명 : 박 재 덕
지정기간 : 2012. 7. 6 ~ 2018. 7. 5
지정범위 : 뒷면참조

위 제품을 조달사업에관한법률
제9조의2 및 동법시행령 제18조에 따라
위와 같이 우수제품으로 지정합니다

2016년 10월 5일

조 달 청 장

4

제 2015-03 호

우수환경산업체 지정서

업 체 명 : (주)로알정공
주 소 : 대구광역시 달서구 성서공단로 25길 6
주생산품 : 원심탈수기, 원심분리기, 원심농축기, 스크류프레스
지정기간 : 2015년 7월 24일부터 2020년 7월 24일까지

「환경기술 및 환경산업 지원법」 제7조의5, 같은 법 시행령 제19조의6 및 같은 법 시행규칙 제6조의5 제2항에 따라 귀사를 우수환경산업체로 지정합니다.

2015년 7월 24일

환 경 부 장 관

5

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

Registration no: CA-E-63004

We certify that the Environmental Management System of the Organization:
Royal Precision Ind. Co., Ltd.
(주)로알정공

Address: 6, Seongseogongdan-ro 25-gil, Dalseo-gu, Daegu, Korea
대구광역시 달서구 성서공단로25길 6

In compliance with the standard: KS I ISO 14001:2009/ISO 14001:2004

For the following products/services:
Design, manufacture, installation and service of valves, centrifuges, centrifuges dehydrator, centrifuges thickener, plant and screw decanters
밸브, 원심분리기, 원심탈수기, 원심농축기, 플랜트 및 스크류 대칸트의 설계, 생산, 설치 및 부가서비스

EA: 18

Certificate issuance date: 2015-10-21
Last modification date: 2015-10-29
Certificate expiry date: 2018-10-30

General Manager
Seung-Chan Lee

kiwa

6

QUALITY MANAGEMENT SYSTEM CERTIFICATE

Registration no: CA-Q-091143

We certify that the Quality Management System of the Organization:
Royal Precision Ind. Co., Ltd.
(주)로알정공

Address: 6, Seongseogongdan-ro 25-gil, Dalseo-gu, Daegu, Korea
대구광역시 달서구 성서공단로25길 6

In compliance with the standard: KS Q ISO 9001:2009/ISO 9001:2008

For the following products/services:
Design, manufacture, installation and service of valves, centrifuges, centrifuges dehydrator, centrifuges thickener, plant and screw decanters
밸브, 원심분리기, 원심탈수기, 원심농축기, 플랜트 및 스크류 대칸트의 설계, 생산, 설치 및 부가서비스

EA: 18

Certificate issuance date: 2015-04-15
Last modification date: 2015-03-24
Certificate expiry date: 2018-04-14

General Manager
Seung-Chan Lee

kiwa

7

AWARDS & PRIZE

BRONZE TOWER

훈 장 증

(주) 로 얄 정 공
대표이사 박 재 덕

귀하는 환경보전활동을 통하여 국가산업 발전에 이바지한 공로가 크므로 대한민국 헌법에 따라 다음 훈장을 수여합니다.

동탑산업훈장

2015년 6월 5일

대통령 박 근 혜

국무총리 최 경 환

이 증을 산업훈장부에 기재합니다.

행정자치부장관 정 종 섭

THE PRESIDENT PRIZE

표 창 장

(주) 로 얄 정 공
대표이사 박 재 덕

귀하는 평소 맡은바 직무에 정려하여 왔으며 특히 중소기업 진흥을 통하여 국가 산업 발전에 기여한 공이 크므로 이에 표창함

2006년 5월 17일

대통령 노 무 현

이 증을 대통령표창부에 기입함

행정자치부장관 이 용 섭

PRIME MINISTER PRIZE

표 창 장

(주) 로 얄 정 공

위는 평소 맡은바 직무에 정려하여 왔으며 특히 신기술실용화를 통하여 국가 산업 발전에 기여한 공이 크므로 이에 표창함

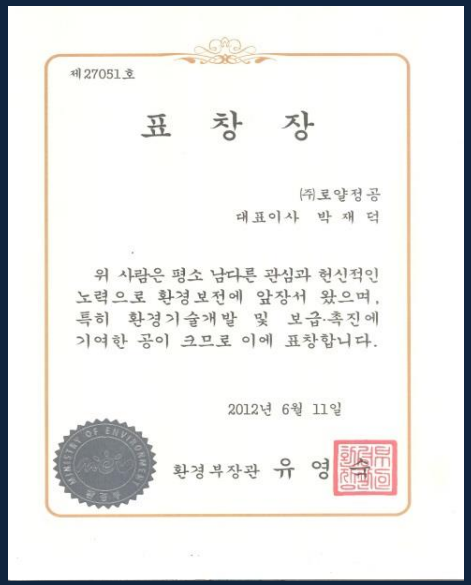
2003년 11월 1일

국무총리 고 건

이 증을 국무총리 표창부에 기입함

행정자치부장관 허 성 관

MINISTER OF ENVIRONMENT PRIZE



제 27051 호

표 창 장

(주)로얄정공
대표이사 박 재 덕

위 사람은 평소 남다른 관심과 헌신적인 노력으로 환경보전에 앞장서 왔으며, 특히 환경기술개발 및 보급·촉진에 기여한 공이 크므로 이에 표창합니다.

2012년 6월 11일

환경부장관 유 영 숙

KOREA PROCUREMENT AGENCY PRIZE

제 3800 호

표 창 장

(주) 로 얄 정 공
대표이사 박 재 덕

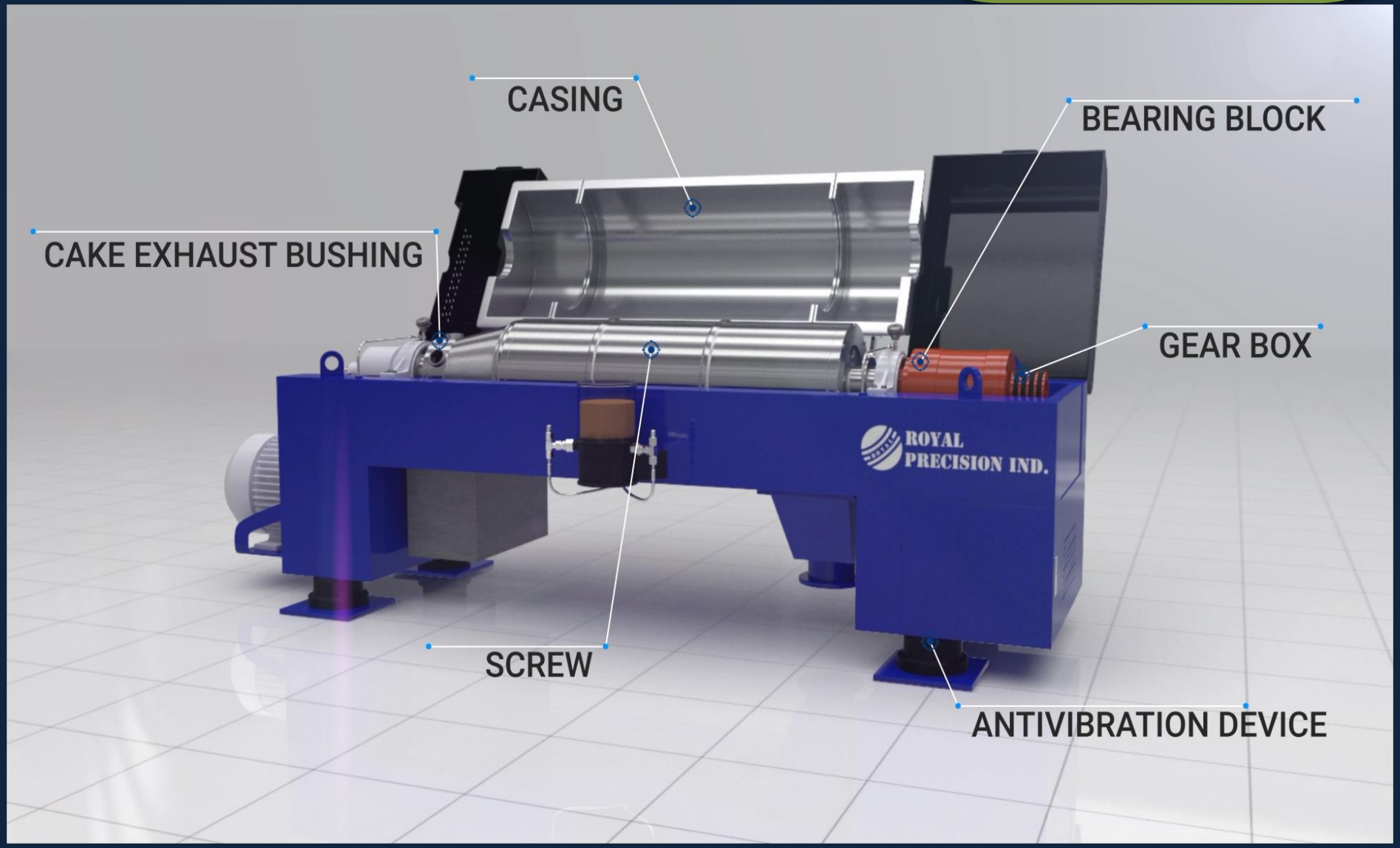
귀하는 평소 투철한 기업관과 창의력으로 중소기업의 지위향상에 기여함은 물론 기계공업분야 발전에 기여한 공로가 크므로 이에 표창합니다

2009 년 2 월 26 일

조달청장 권 태 신

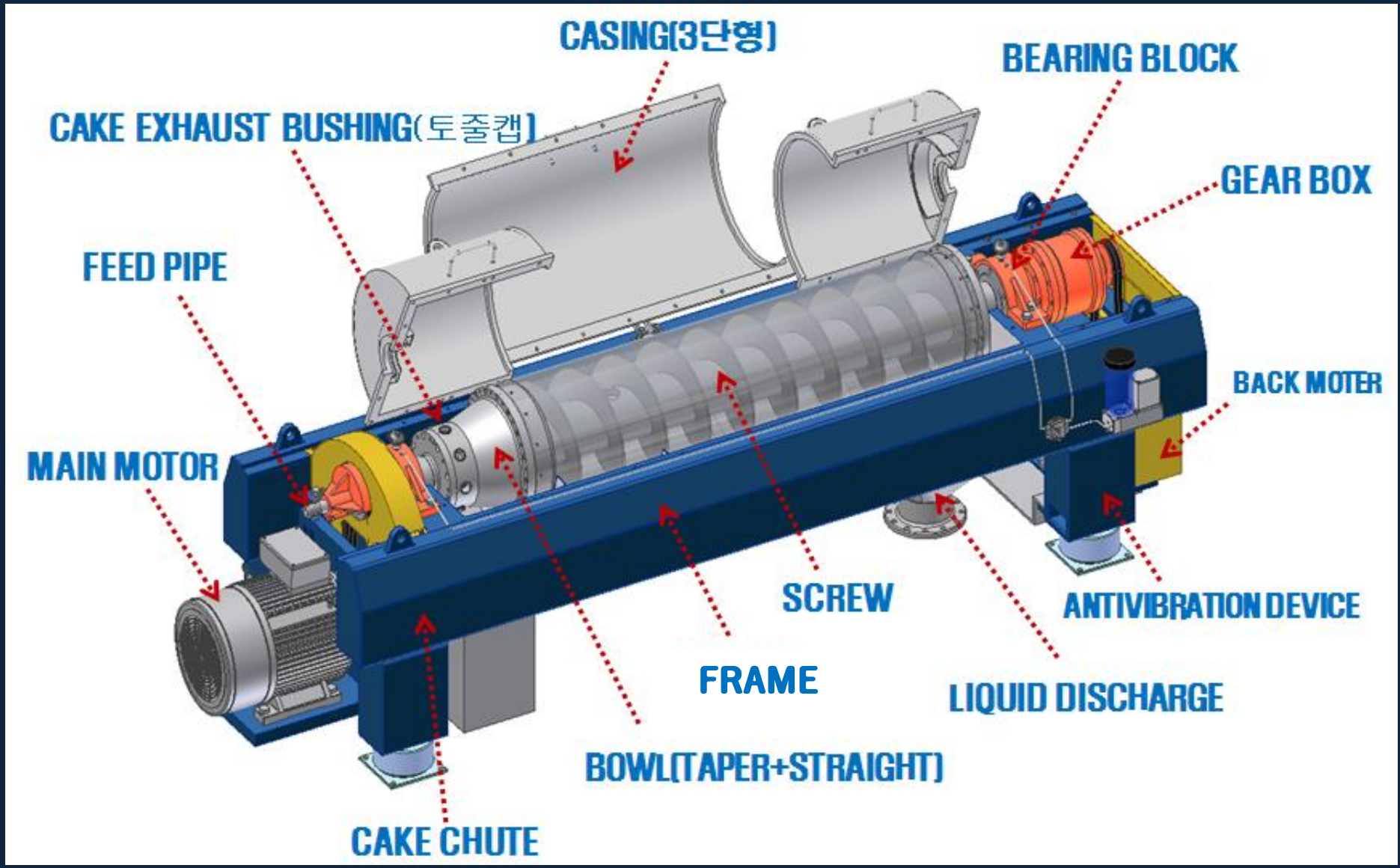
NAME & STRUCTURE OF EACH PART

Key Structure



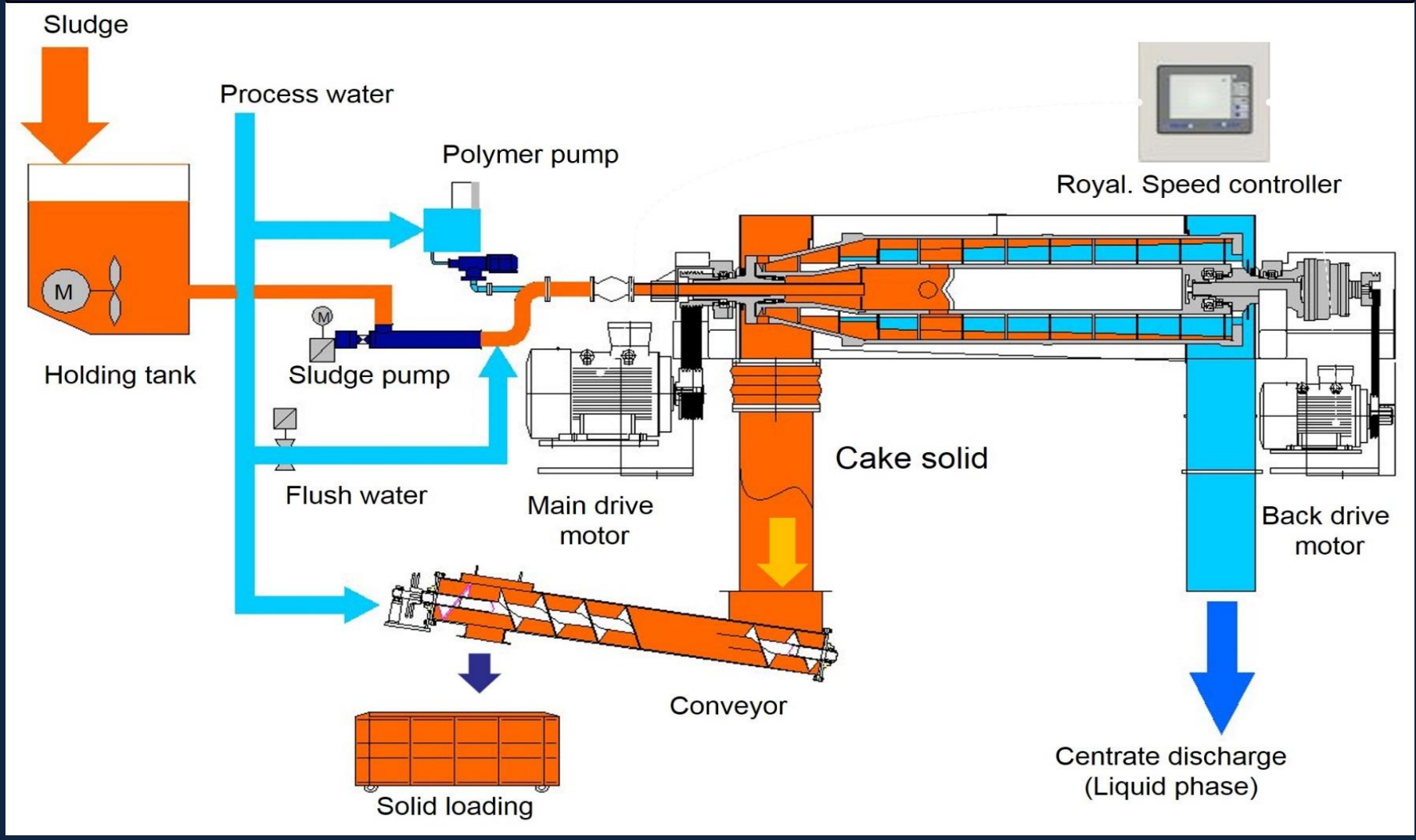
NAME & STRUCTURE OF EACH PART

Structure



Installation

Centrifuge installation for dewatering of sewage sludge (Royal precision ind. Co.Ltd.)



DEWATERING THEORY

The different types of sludge:

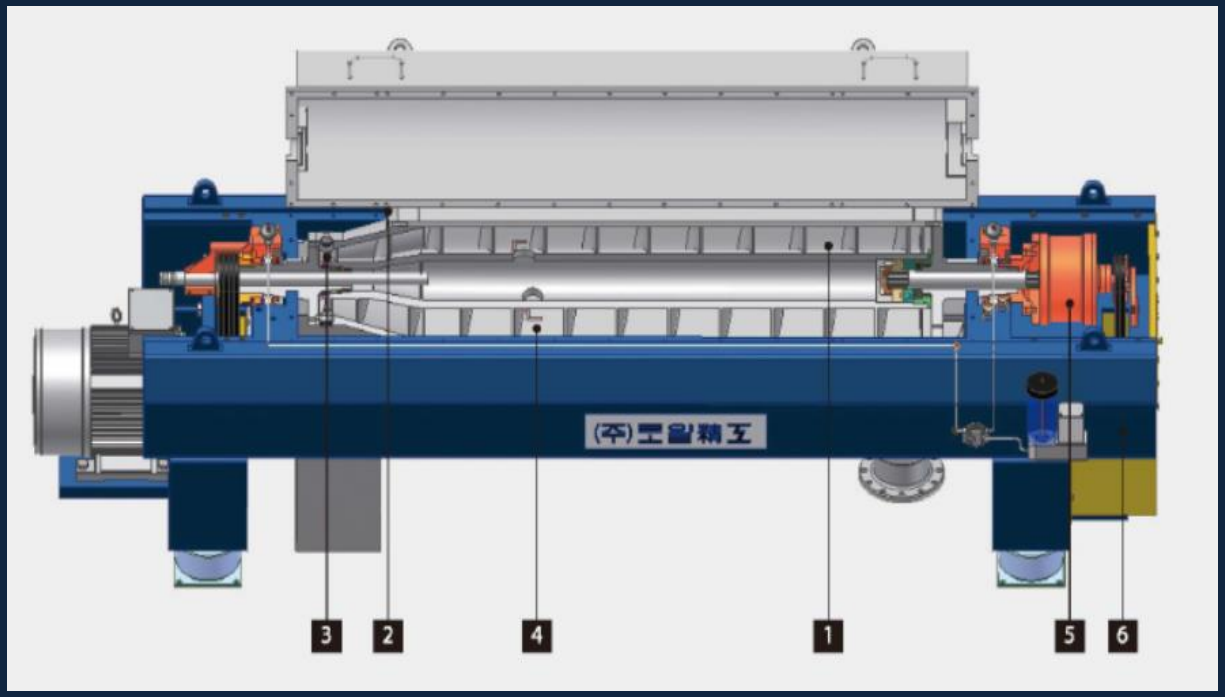
Sludge characterization

	Primary	Thickening	Excess biological	Centrifuge thickening	Digested	Mixed
TS (mg/L)	18,775	22,852	4,936	46,707	31,215	33,391
VS (mg/L)	10,796	13,918	3,403	33,614	14,920	18,647
VS/TS (%)	57.3	60.6	68.9	72	47.8	56.2
Moisture content(%)	74 ~ 77	75 ~ 80	77 ~ 83	77 ~ 83	71 ~ 75	74 ~ 77

VS/TS ratio % & Moisture content

	Primary	Excess biological	Digested
VS/TS (%)	50 ~ 60	68 ~ 70	40 ~ 50
Moisture content(%)	74 ~ 80	77 ~ 83	71 ~ 77

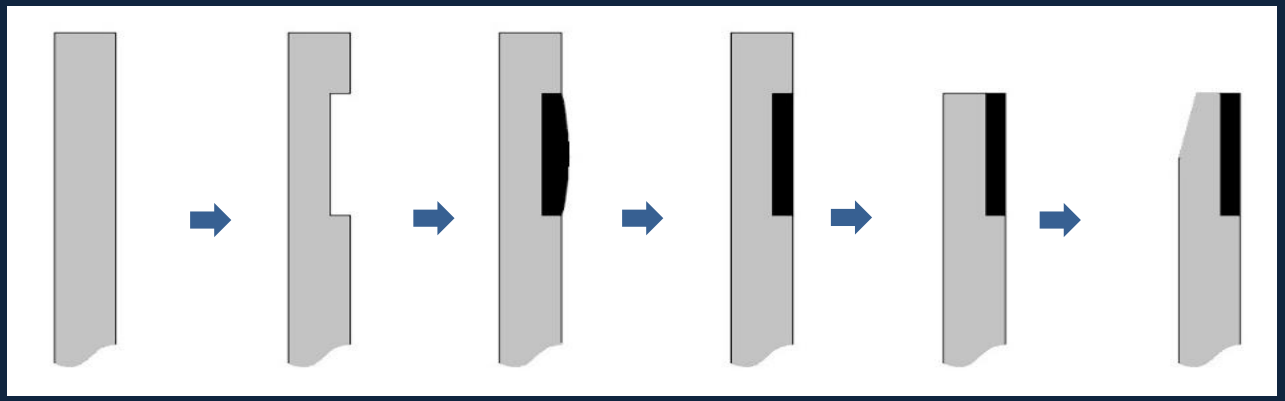
MAIN FEATURE & QUALITY GUARANTEE CORE PARTS



1. Patent 10-0857507: Wing hardening technology Core is durable even in High density sludge.
2. Patent10-0920493: Noise prevention plate is excellent in noise prevention function.
3. Patent10-0953671: Screw-Decanter-Centrifuge type that Sludge concentration time is fast and dehydration rate is increased.
4. Patent10-0977196: The two-stage accelerated discharge cover device shortens the concentration time and accelerates the peeling of the cake.
5. Patent 0340190: Two-stage accelerating gearbox maximizes dewatering rate
6. Patent 0407896: Has the effect of reducing exhaust energy, minimizing load, and maximizing volume

MAIN FEATURE & KEY TECHNOLOGY

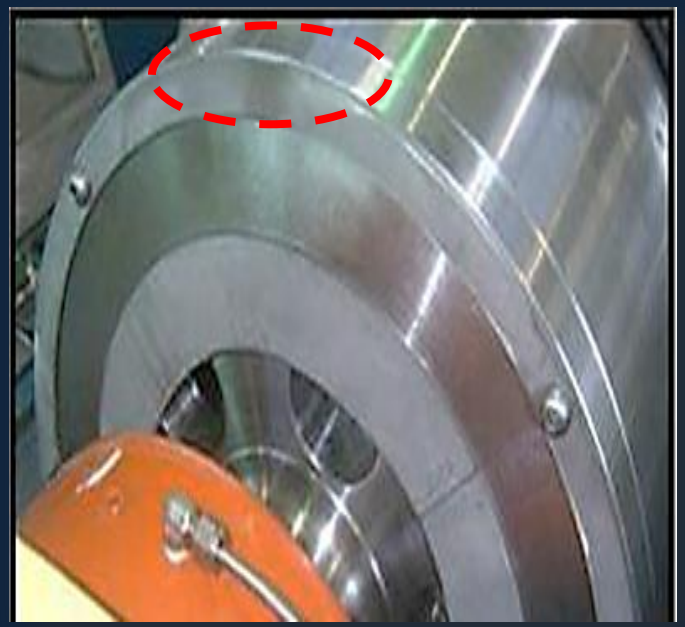
1. Screw fight hardening method



- Smooth surface
- Making regular gap
- Lower turbulent eddy creation
- Scroll efficiency increase
- Smaller scrolling torque
- Reduction in power consumption

MAIN FEATURE & KEY TECHNOLOGY

2. Noise control plate



Achieve 60dB

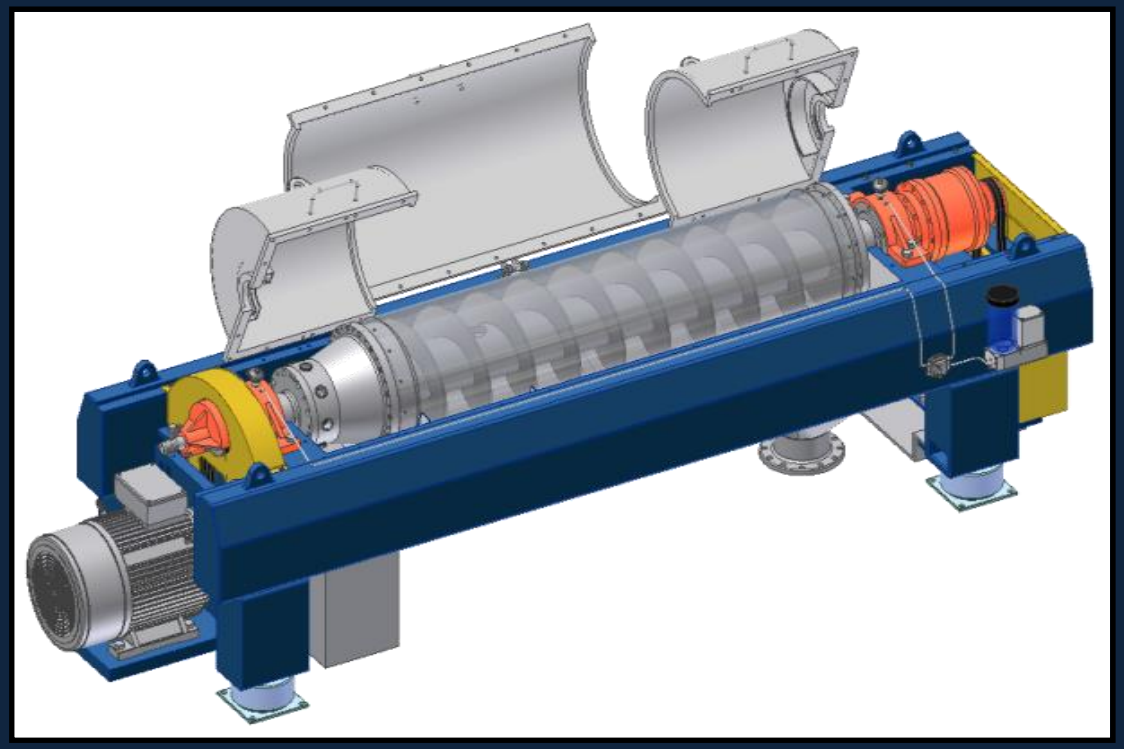
- To reduce decanter machine noise,
- Specially to minimise the bolt hole that produce vortex/turbulence noise

- Noise control plate should be designed so that the noise is produced within parts of the sound spectrum that have low noise levels.

✓ Noise control plate mounted onto wrench bolt
✓ Round head bolt reduce noise level

MAIN FEATURE & KEY TECHNOLOGY

3. Multi stage casing cover

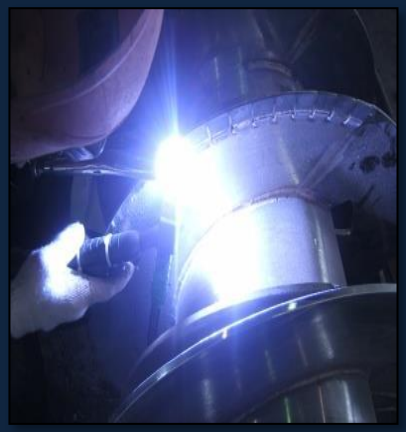


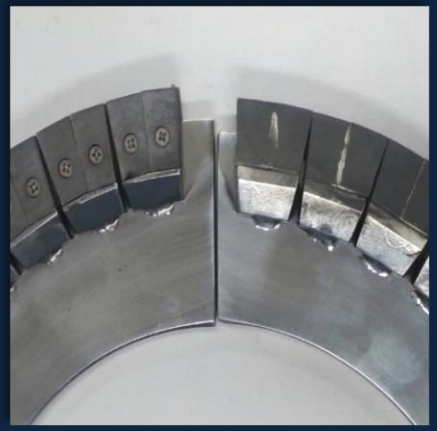
Fast & Easy Maintenance, Save working time!

- Multi-stage casing
- Convenient maintenance, only opening small casing
- Reduce Noise & vibration of the effects of increased stiffness
- Reduce maintenance workers

MAIN FEATURE & KEY TECHNOLOGY

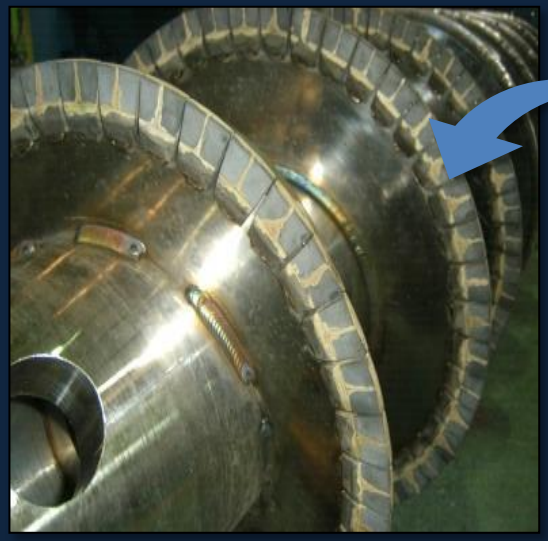
4. Screw conveyor hardening

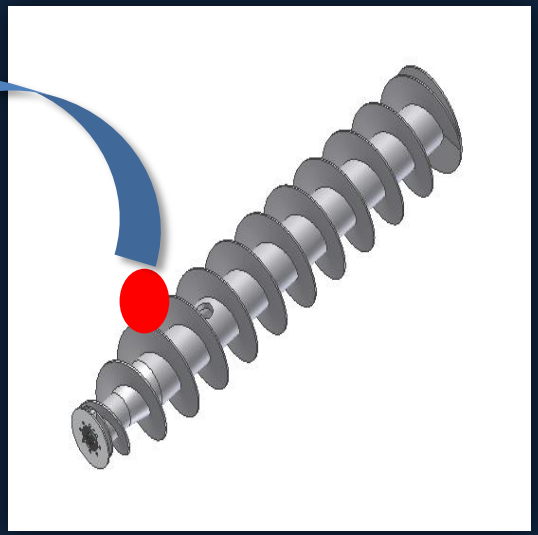




Strong to Heavy Solid

Flame sprayed & WC Tile Ceramic , tungsten carbide and Special surface coating for high acid, non abrasive corrosive material – Duplex, hastelloy fusion





MAIN FEATURE & KEY TECHNOLOGY

5. Solids discharge wear protection

WC Bush

Permanent durability, No maintenance

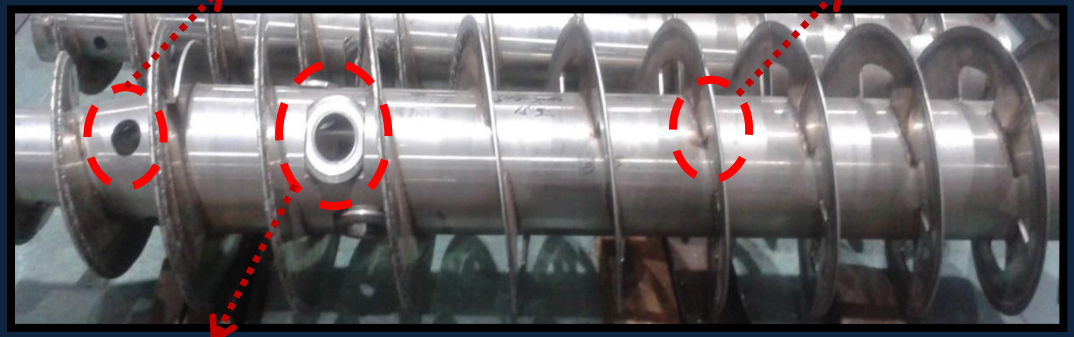
- Existing Decanter that there are too many maintenance, as brittle ceramic cause discharge port to break easily.
- Non permanent complicated structure is extremely dangerous for the case of high revolution machine.
- New material discharge cap is almost permanent and internal exchange structure that is adapted for high revolution.

MAIN FEATURE & KEY TECHNOLOGY

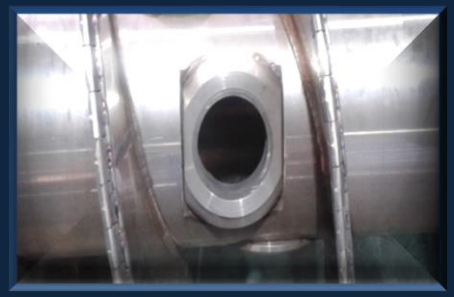
6. Wear protection & Corrosion resistance part

WC Carbide Tile

WC Alloy Eutalloy



Sludge Exhaust Bushing



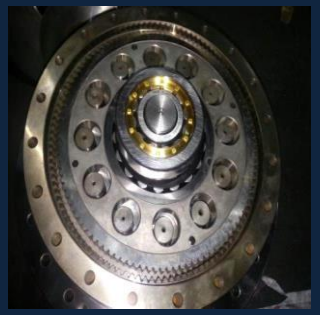
Cake Exhaust Bushing

Great permanence and reliability

- uses high-grade stainless steel for all parts.
- High stiffness screw design,
- WC Tile, and Hastelloy, Ceramic-carbide coating.
- Special thermal processing. Kolsterizing.

MAIN FEATURE & KEY TECHNOLOGY

7. Power Transmission

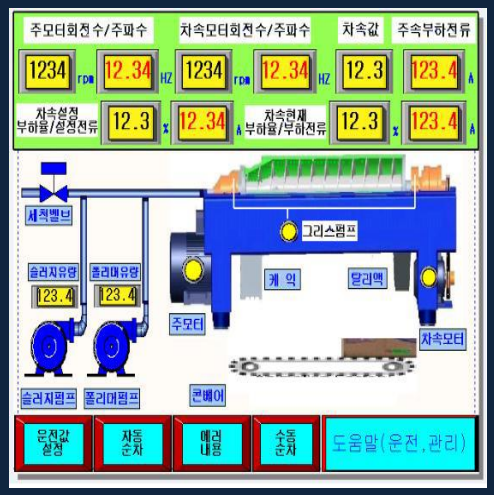
	Parts photo			Assembled
Planetary reducer			→	
Cyclo + Planetary reducer			→	

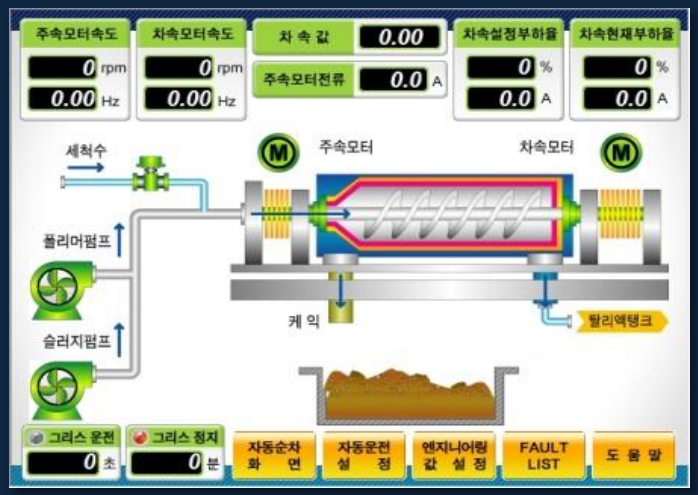
Wide-ranging

- Offers a variety of gearboxes that are used in decanter
- Designed to fit into all applications.
- Our engineering experience has allowed us to provide customers with many alternatives that will save them money in the long run by allowing them to avoid many unnecessary repair costs

MAIN FEATURE & KEY TECHNOLOGY

8. HMI total automation





Convenient operation

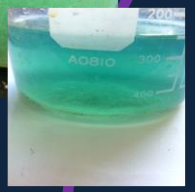
- HMI conventional operation panels allows easy operation
- Siemens PLC Program + Yasakawa Inverter can be centralized control method and has all interface working operations.
- With touch screen is positioned close to decanter centrifuge & used mainly for maintenance
- The operator can observe and verify the results of operating condition, if required.

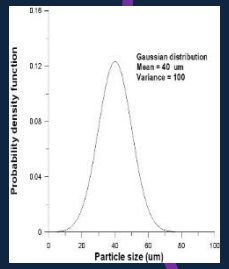
MAIN FEATURE & KEY TECHNOLOGY

9. Optimum design, CFD Simulation

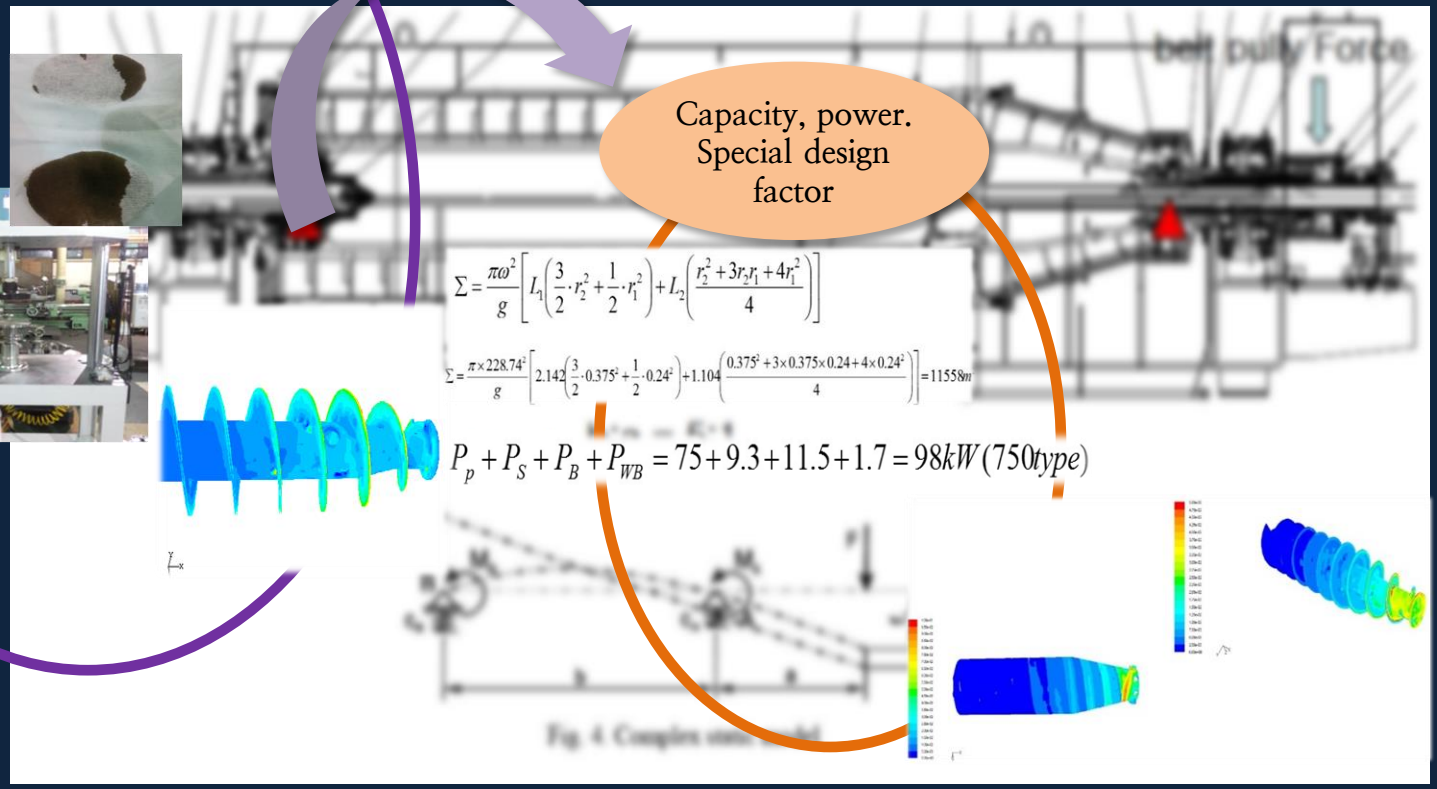
More than 1,000 sludge ingredients have been successfully, We provides optimal design value with abundant field experience.

Partical size,
viscosity, density etc..
Parameter
considering





Capacity, power.
Special design
factor



$$\Sigma = \frac{\pi\omega^2}{g}\left[L_1\left(\frac{3}{2}\cdot r_2^2 + \frac{1}{2}\cdot r_1^2\right) + L_2\left(\frac{r_2^2 + 3r_2r_1 + 4r_1^2}{4}\right)\right]$$

$$\Sigma = \frac{\pi \times 228.74^2}{g}\left[2.142\left(\frac{3}{2}\cdot 0.375^2 + \frac{1}{2}\cdot 0.24^2\right) + 1.104\left(\frac{0.375^2 + 3\times 0.375\times 0.24 + 4\times 0.24^2}{4}\right)\right] = 11558m$$

$$P_p + P_S + P_B + P_{WB} = 75 + 9.3 + 11.5 + 1.7 = 98kW\,(750type)$$

BUSINESS FIELDS

“VALVE”

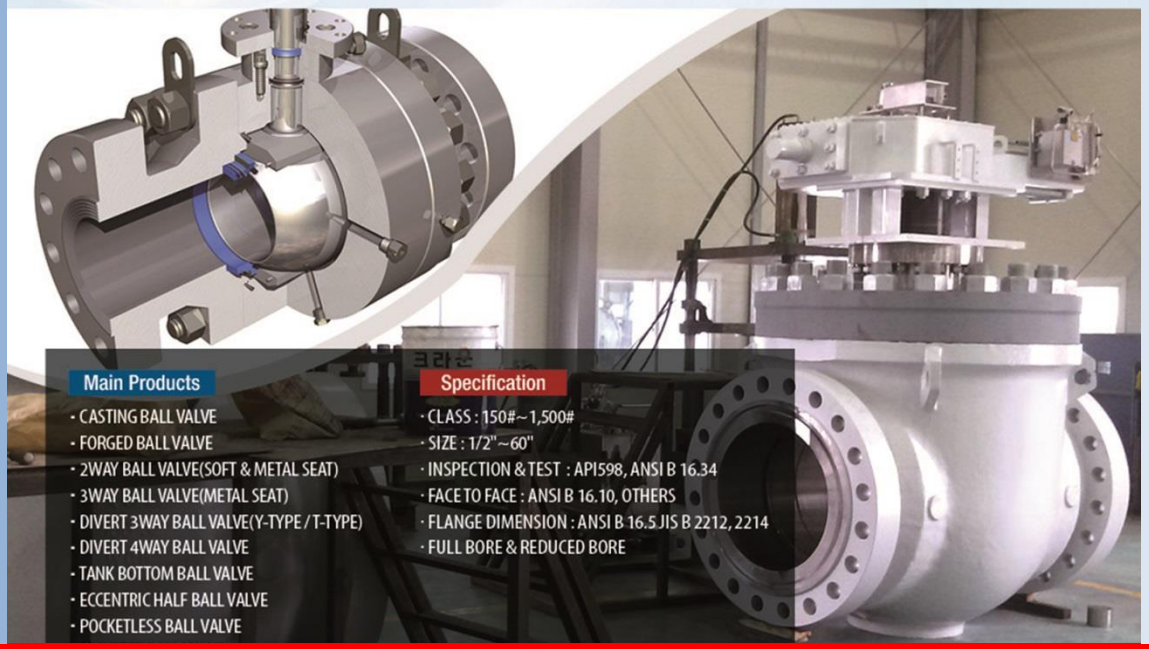
RVC www.korearoyal.com
ROYAL BALL VALVES

RVC

www.korearoyal.com

ROYAL BALL VALVES

ROYAL Ball Valve, since foundation year 1986, develop Manual, Special, and Order Made Valve with excellent quality based on the various experience and advanced technologies and supply to the various industrial field including Oil, Gas, the food, chemistry, Alchol, steel, fiber, environment, and etc.



Main Products

- CASTING BALL VALVE
- FORGED BALL VALVE
- 2WAY BALL VALVE(SOFT & METAL SEAT)
- 3WAY BALL VALVE(METAL SEAT)
- DIVERT 3WAY BALL VALVE(Y-TYPE / T-TYPE)
- DIVERT 4WAY BALL VALVE
- TANK BOTTOM BALL VALVE
- ECCENTRIC HALF BALL VALVE
- POCKETLESS BALL VALVE

Specification

- CLASS : 150#~1,500#
- SIZE : 1/2"~60"
- INSPECTION & TEST : API598, ANSI B 16.34
- FACE TO FACE : ANSI B 16.10, OTHERS
- FLANGE DIMENSION : ANSI B 16.5 JIS B 2212, 2214
- FULL BORE & REDUCED BORE

Royal Valve 30 years
With the quality of the Royal,
With Royal's reputation,
Reward you with the Royal

PRODUCT LINEUP

1 RFB-FLG' D BALL V/V

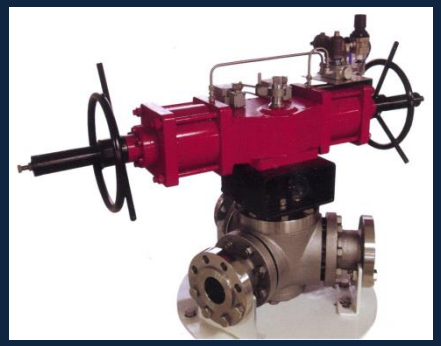
- Standard Design
  - Design Press' : 0.1~79kgf/cm²
  - Test Press' : API598, ANSI B16.34
  - Face to Face : ANSI B16.10
  - Flange Dimension : ANSI B16.5, JIS B2214

2 RJB-JACKETED BALL V/V

- Standard Design
  - Design Press' : 0.1~24kgf/cm²
  - Design Temp' : -20~230°C
  - Pneumatic Operated & Electric Operated

PRODUCT LINEUP

3 R3B-DIVERT 3WAY Y-TYPE



- **Standard Design**
  - **Max Design Press' : 24kgf/cm²**
  - **Max Design Temp' : 220˚C**
  - Service Name : Nylon Chip, Polyester Chip, Power
  - Pneumatic Operated Air Press' : 4~6kgf/cm²

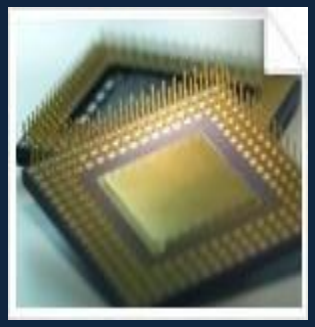
4 R3B-DIVERT 3WAY T-TYPE

- **Standard Design**
  - **Design Press' : 0.1~24kgf/cm²**
  - **Design Temp' : -20~220˚C**
  - Service Name : Water, Oil, Gas, Chemical, etc

PRODUCT LINEUP

5 R4B-DIVERT 4WAY BALL V/V

- Standard Design
  - Design Press' : 0.1~24kgf/cm²
  - Design Temp' : -20~220˚C
  - Face to Face : Maker Std
  - Flange Dimension : ANSI B16.5, JIS B2214



6 RTB-TANK BOTTOM BALL V/V

- Standard Design
  - Design Press' : 0.1~24kgf/cm²
  - Design Temp' : -20~220˚C
  - Pneumatic Operated Press : 4~6kgf/cm²

PRODUCT LINEUP

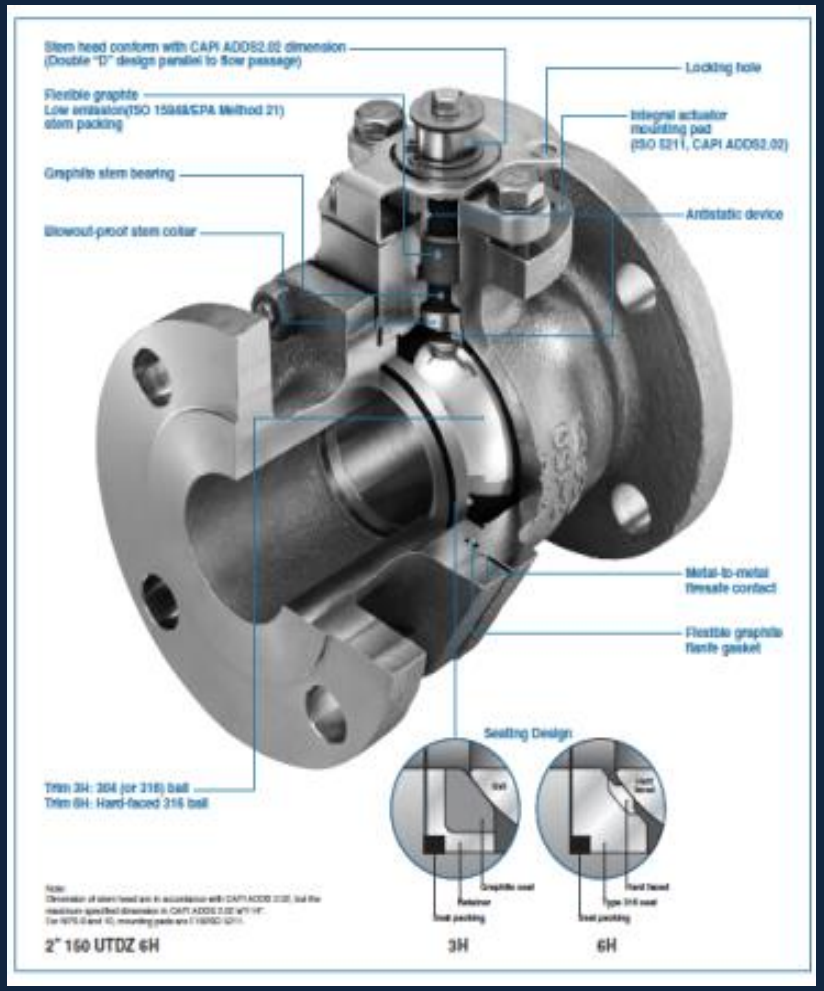
7 REB-ECCENTRIC HALF BALL V/V

- Standard Design
  - Design Press' : 0.1~24kgf/cm^2
  - Test Press' : API598, ANSI B16.34
  - Face to Face : Maker Std
  - Flange Dimension : ANSI B16.5,JIS B2214

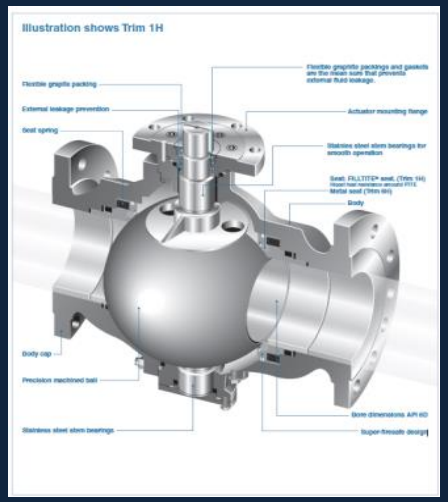
8 RVB-VACCUM BALL V/V

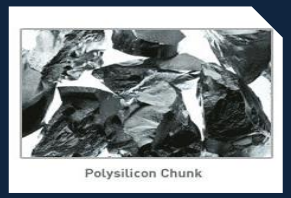
- Standard Design
  - Wall Thickness : ANSI B16.34
  - Face to Face : ANSI B16.10
  - Test Specification : API598

9 METAL SEAT BALL V/V FLG' D RF



Valve Design		Floating Ball Valve		Trunnion Mounting Ball Valve
Trim symbol		5H	6H	6H
Temp.		300°C	500°C	450°C
		572°F	932°F	842°F
Seat leakage*1		ANSI FCI 70-2 Class VI		
Parts	Ball	ASTM A276 Type 316 or ASTM A351 CF8M + Cr plated	ASTM A276 Type 316 or A351 Gr.CF8M + SFNi *2	ASTM A276 Type 304 + SFNi *2
	Ball Seat	ASTM A276 Type 316 + SFNi *2	ASTM A276 Type 316 + SFNi *2	ASTM A276 Type304 + SFNi *2
	Stem	A 564 Type 630	A 564 Type 630	ASTM A276 Type304 + SFNi *2





ROYAL-BELTPRESS

REMARKABLE SLUDGE DEWATERING

EFFICIENT SLUDGE DEWATERING

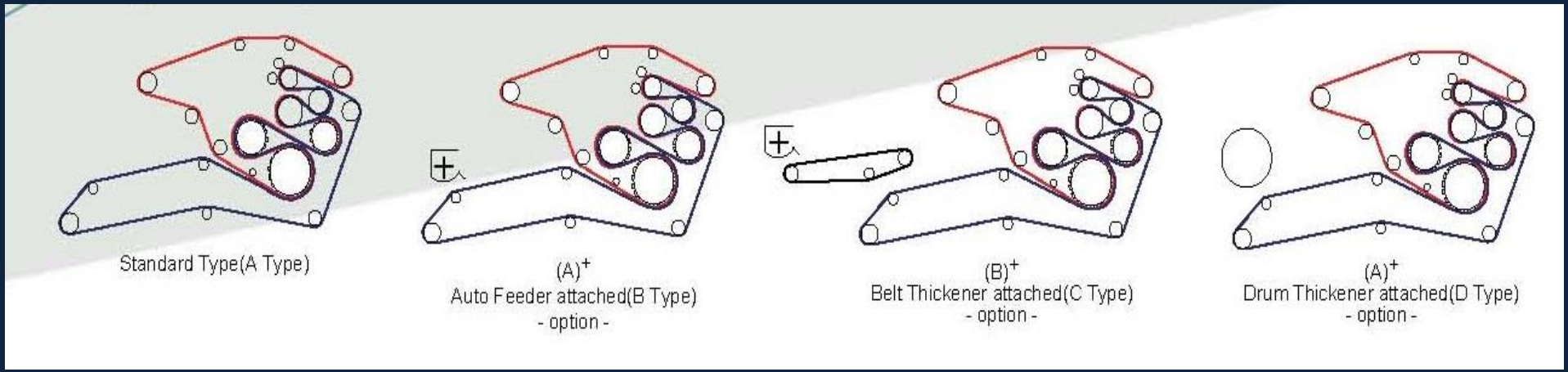
LOW INVESTMENT AND OPERATING COSTS

CAKE SOLID UP TO 50% DEPENDS ON SLUDGE CONDITIONS

AUTO WASHING AND CLEANING NOZZLE SYSTEM

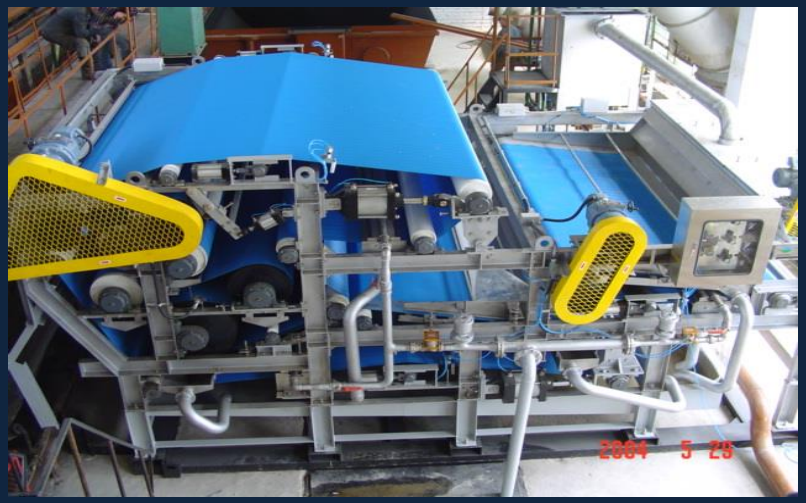
WHAT DIFFERENT ?

Pre-section + Dynamic High Efficiency
6 stage Roller Main Section + After Section



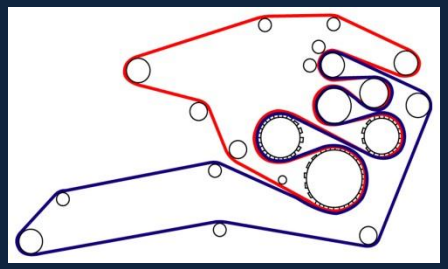
Component parts of Pre-Section, Drum Screen, Auto-Feeder, Belt Thickener + Dynamic Work Frame and Various kinds of S-Shape Roller Stages arrangement in Main Body + Ending composed of Add High Pressure Zone dewatering device gives High dewatering effects for all different types of wastewater sludge.

BASIC MODEL



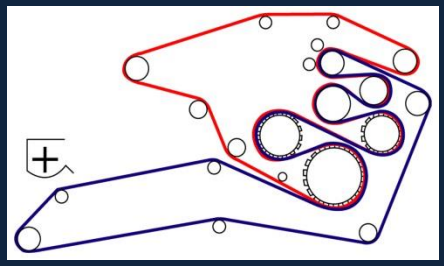
6 STAGE MEDIUM PRESSURE

- 6 Stage Roller pressure
- Can be mounted with DRUM/BELT Thickener, AUTO-Feeder accordingly.
- Use for General type Sludge
- +15% DS



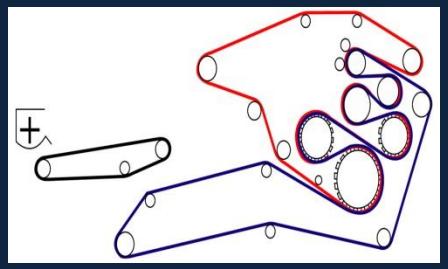
STANDARD (A) TYPE

6 Medium pressure Roller
+ Gravity Zone

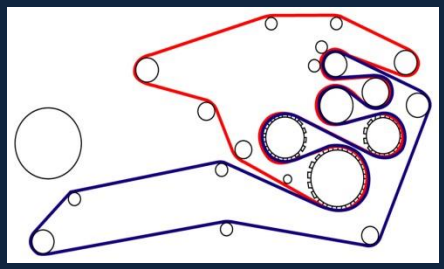


AUTO-FEEDER

Mounted+A (B)



Auto-Feeder+Belt
Thickener
Mounted+A (C)



DRUM SCREEN

Mounted+A (D)

WHY ?

The “Sufficiency Dewatering” available equipment

Conventional Dewatering Devices

- Dynamic Frame Work
- High Drainage Zone
- Wedge Zone
- Squeeze Zone
- High Pressure Zone

Extract the free water contained in the liquid sludge, limited to ~20%DS in sludge cake.

ROYAL-BELTPRESS

Extract both “Free & Absorbed” water

Cuts typical waste volume higher than others

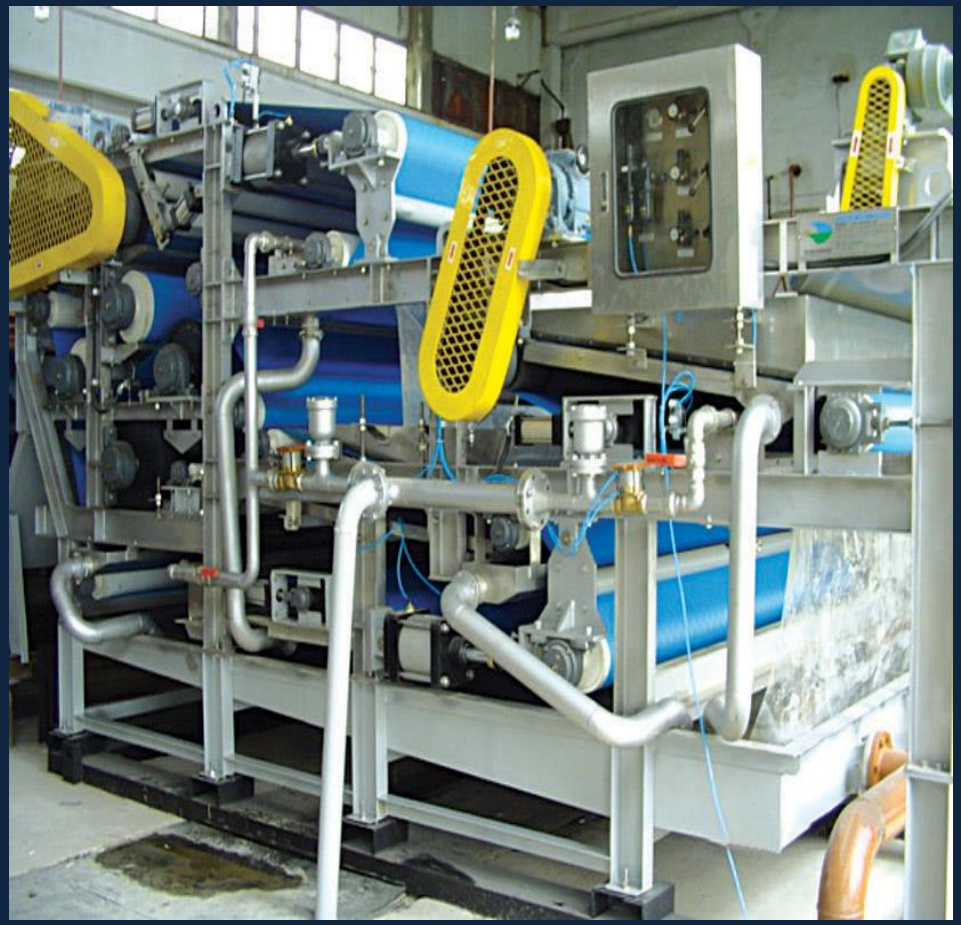
Efficiently achieves >20% dry solid

Low energy, Long Durability, High Effect against others

LIFE SPAN ?

LONG DURABILITY, DYNAMIC FRAME WORK

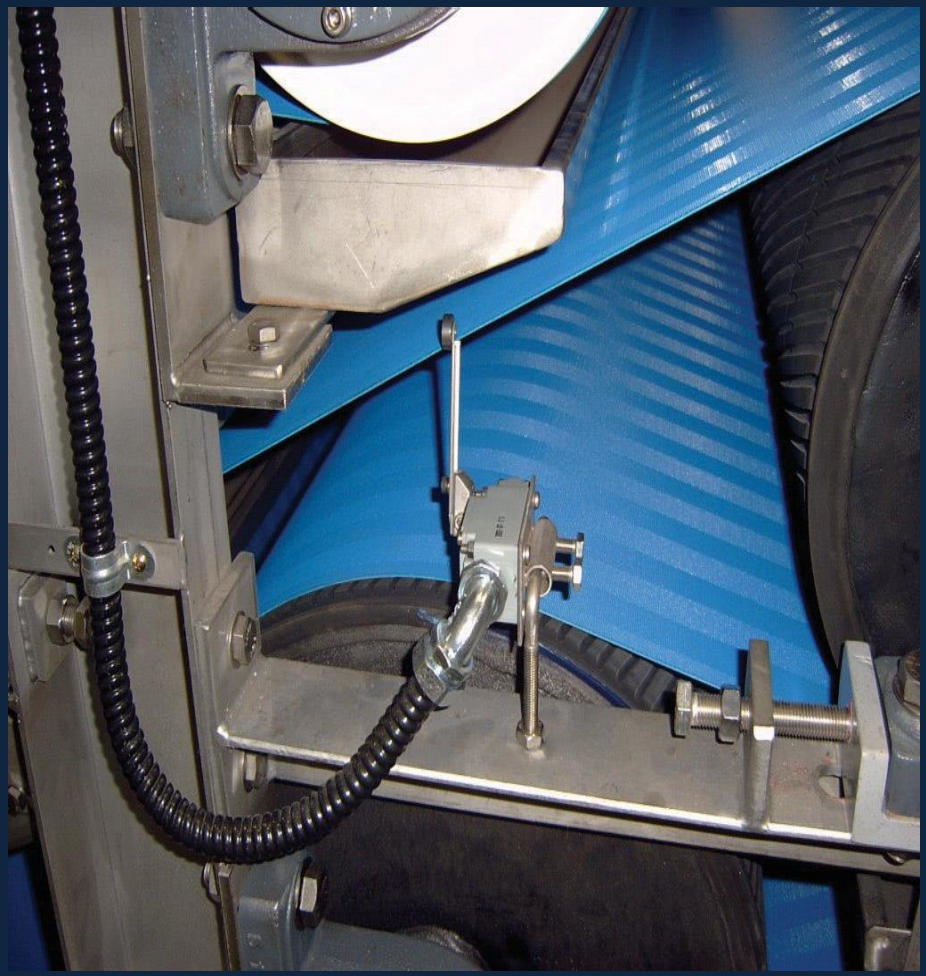
① The well Conditioned Sludge fed on the upper Belt,
② Distributes evenly by Dynamic Frame, Good arrangement Rollers, good attachments,
③ Belt Thickener, Drum Screen, Auto-Feeder etc.



MAIN FEATURE & QUALITY ?

SPECIAL HAND-MADE RUBBER ROLLER

- The Special Flute Helical gives fast High drain & Squeeze dewatering effect
- Filtrate flow through both Belts without Rewetting the Cake
- Dynamic S-Shape roller arrangement gives High Effect dewatering



MAIN FEATURE & QUALITY ?

DYNAMIC STRUCTURER ROLLER ARRANGEMENT

- Polyamide coated Roller gives high effect squeezing,
- Belts travel around rollers of smaller Diameter,
- The pressure increases gets more water squeezed out.

MAIN FEATURE & QUALITY ?

SELF-CLEANING NOZZLE SYSTEM

- No need cleaning work
- Timer, Sensor operates by Full Automatic Washing System
- Long Durability Nozzle Tip
- High Pressure but Low water Consumption
- Recycle Water reuse

MAIN FEATURE & QUALITY ?

THICKENER OPTION

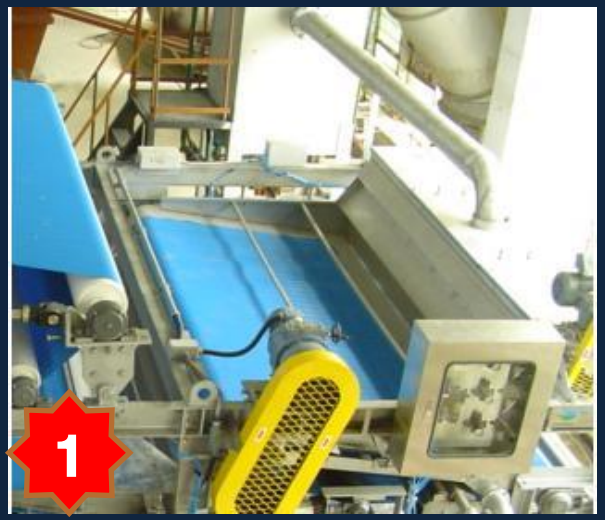
Depending on the nature of the sludge, Thickener option can be adopted to dehydrate the FLOC free-water as much as possible Before entering gravity dehydration section:

AUTO-FEEDER

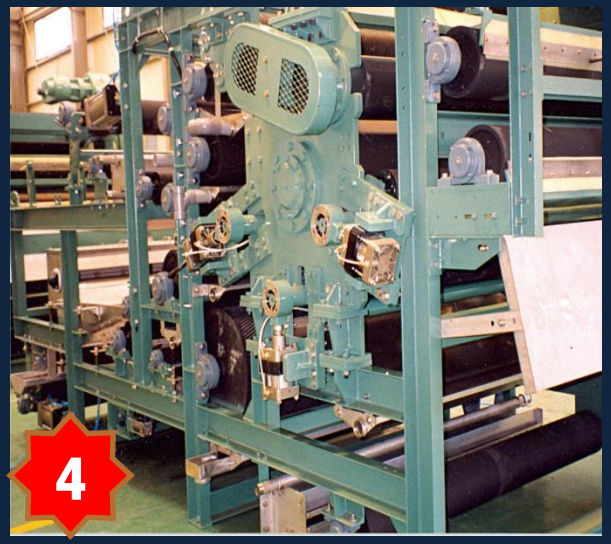
DRUM SCREEN

MAIN FEATURE & QUALITY ?

30-year KNOW-HOW and more than 300 sets reference-achievements, and a variety of actual site sludge from all over the world

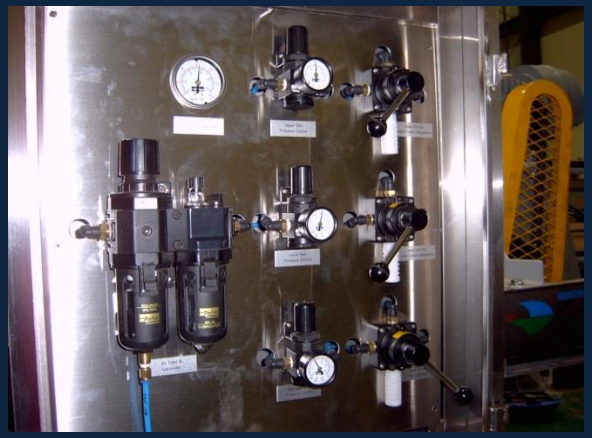


1. BELT-THICKENER,
2. LOW PRESSURE ROLLER,
3. MEDIUM PRESSURE ROLLER,
4. HIGH PRESSURE ROLLER



MAIN FEATURE & QUALITY ?

ATTACHEMENTS DEVICES



AIR CONTROL PANEL

Depending on the thickness of the sludge inlet,

the most appropriate pneumatic tension control is automatically adjusted to ensure optimum dehydration.

AUTO-FEEDER DEVICE

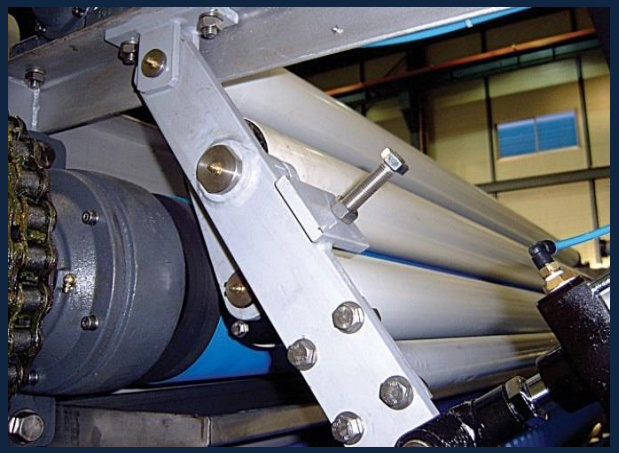
Auto Feeder is the best device to do enough pre-dewatering before inputting sludge to main roller. It is a device that raises the dehydration efficiency by natural dehydration of free-water formed by FLOC as much as possible.

BELT THICKENER

The gravity dehydrator Belt-Thickener is designed to obtain the optimal conditions for natural dehydration, the sludge should be designed and checked carefully for its properties, speed, tilt angle, and belt conditions as well.

MAIN FEATURE & QUALITY ?

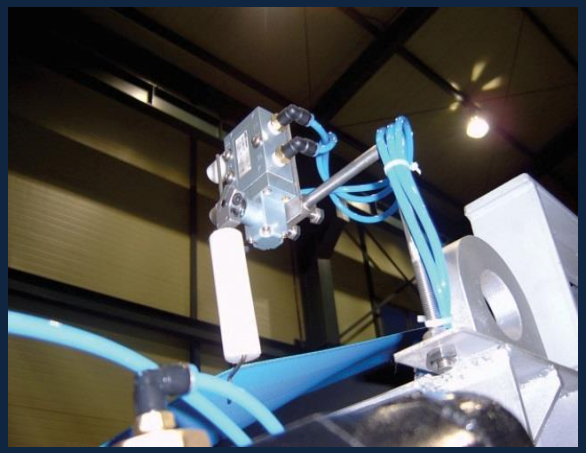
ATTACHEMENTS DEVICES



ADD-PRESSURE ROLLER

The final add-pressure roller is helps to peeled off the final cake with linear pressure and to help dehydrate the filtrate. (Option)

AIR-CYLINDER TENSION DEVICE



LIMIT SWITCH

The reason for using Air Cylinder (without Bellows) and Limit Switch are that, The Air Cylinder & Limit Switch is attached to the left & right sides or Upper & Lower position to find the optimum balance point to prevent belt tilt and help to travel in the correct position.

MAIN FEATURE & QUALITY ?

ATTACHEMENTS SYSTEM

BELT JIG

The Belt Jig is provided to the customer for ease in replacing or mounting the Belt.

AUTO SELF-CLEANING WASHING NOZZLE SYSTEM

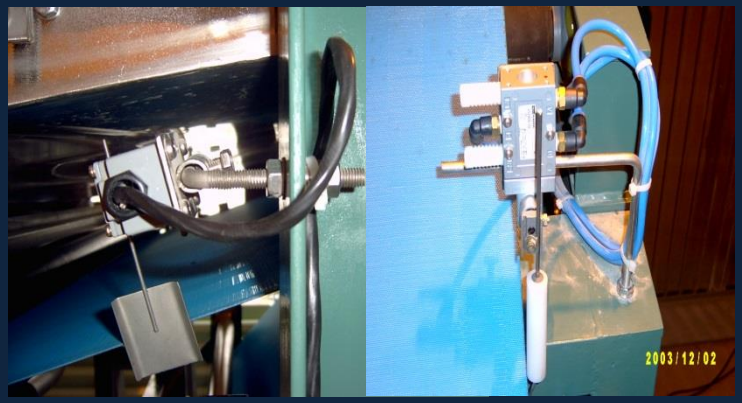
INDIVIDUAL SLUDGE MIXING SYSTEM

It is designed to form Floc to be an optimal Dewatering with Polymer and sludge mixed well.

The automatic cleaning nozzle device system is not the conventional manual cleaning method, that Sludge deposits in the nozzle are discharged instantaneously and Nozzle clogging is eliminated by the automatic timer. Nozzle clogging prevents sludge from entering the belt and shortens the life of the nozzle.

MAIN FEATURE & QUALITY ?

ATTACHEMENTS SYSTEM



UPPER & LOWER BELT MEANDERING S/W

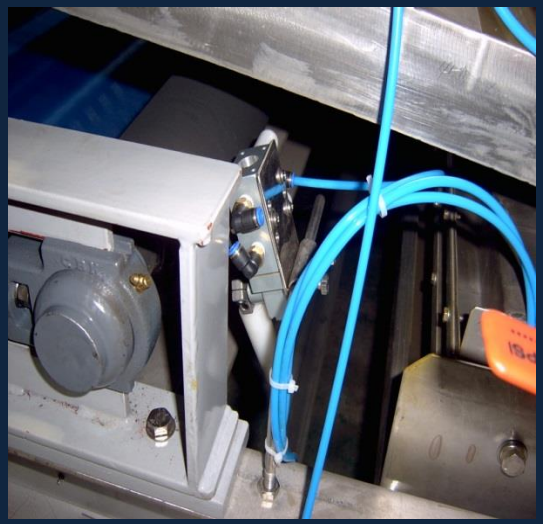
Upper and lower BELT Meandering adjustment Switch is always helps to allows the belt to continue to travel at the correct position. In particular, It is also designed to be safe to shut down the equipment while ringing an alarm when the Belt is out of range.

PLC CONTROL PANEL

It can work with several unit Beltpress and other devices through PLC Program and also Can check and adjust real-time equipment via the Internet in the central control room.

MAIN FEATURE & QUALITY ?

ATTACHEMENTS SYSTEM



ROLLER ALIGNMENT

It is a function to prevent derailment of Roller in advance.

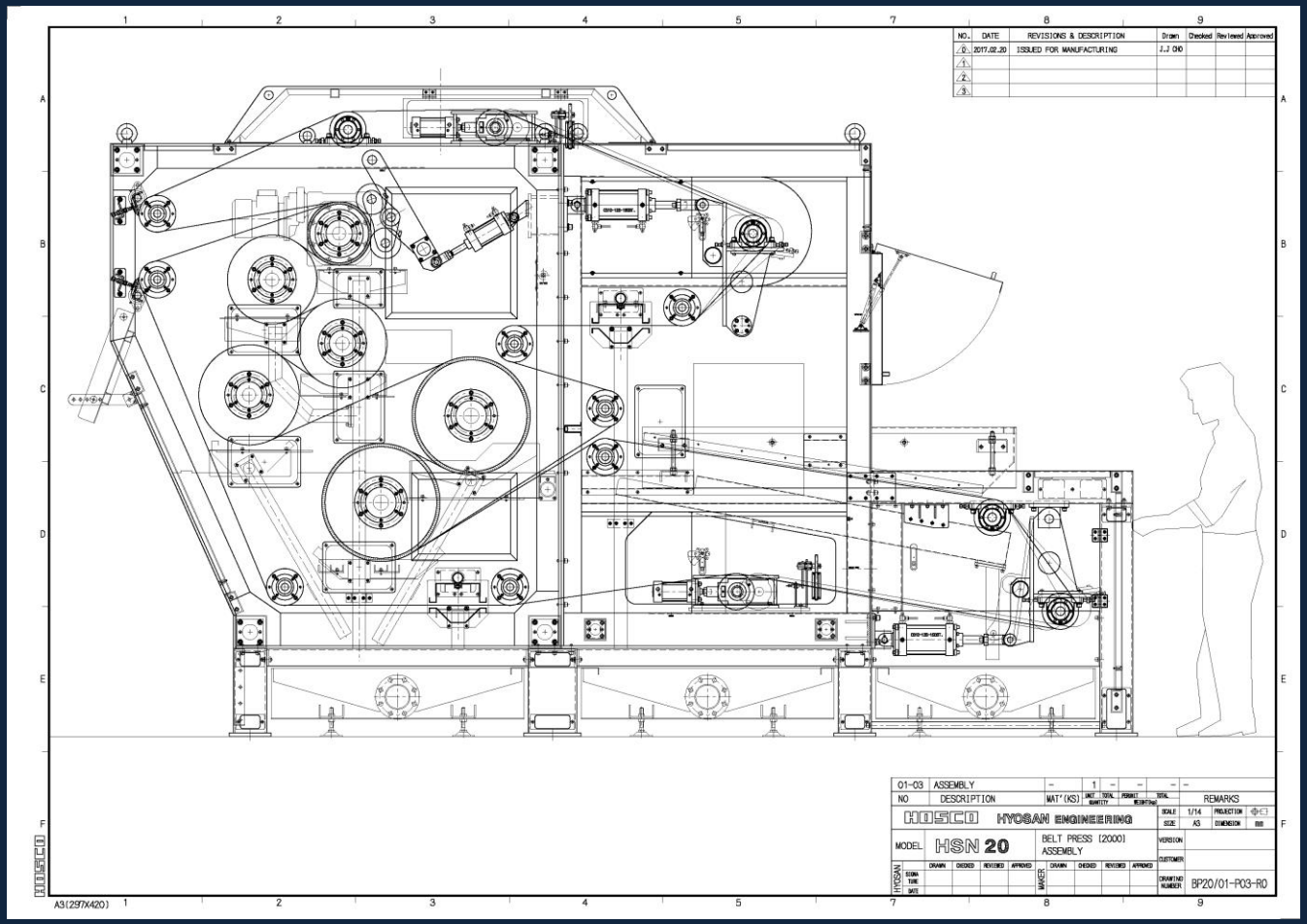
AUTO POLYMER MIXING SYSTEM

Find out the most economical amount of polymer and set-up, It is automatically supplied to help form optimal floc.

CAKE CHUTE

It is designed to get as clean as possible from the belt of the tear cake finally.

MAIN FEATURE & QUALITY ?



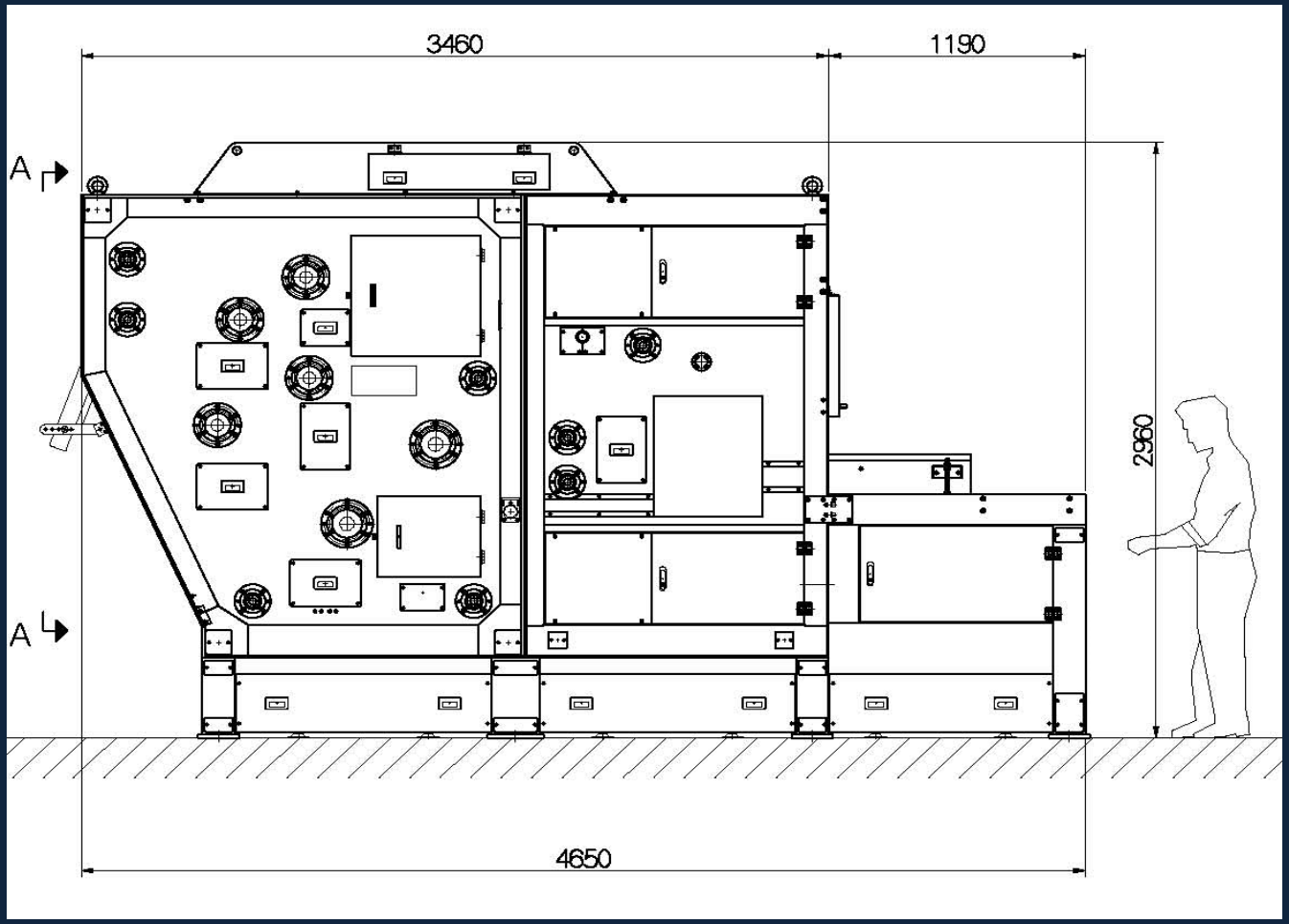
MAIN SPECIFICATION MEDIUM PRESSURE

"NAKED OPEN TYPE"

Specification

Dimension (mtr)LxWxH	Model	Belt With (mm)	Weight (kg)	Energy Consumption (kw/h)
4.2 x 1.6 x 2.3	HSN-100W	1,000	2,900	0.75
4.6 x 2.8 x 2.5	HSN-200W	2,000	5,300	1.5
4.6 x 3.8 x 2.6	HSN-300W	3,000	10,000	2.6

MAIN FEATURE & QUALITY ?



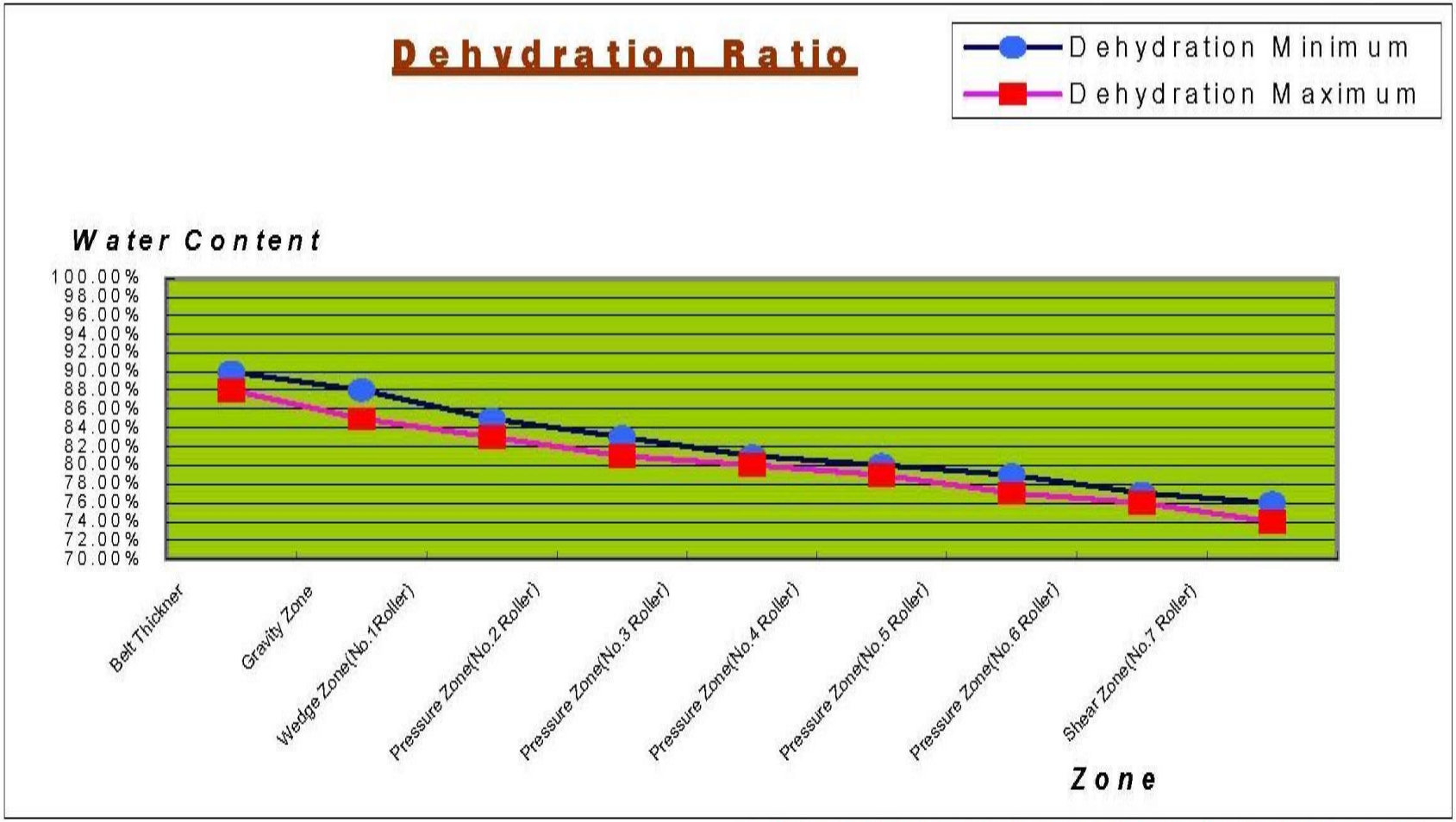
MAIN SPECIFICATION MEDIUM PRESSURE

"CLOSED TYPE"(option)

Specification

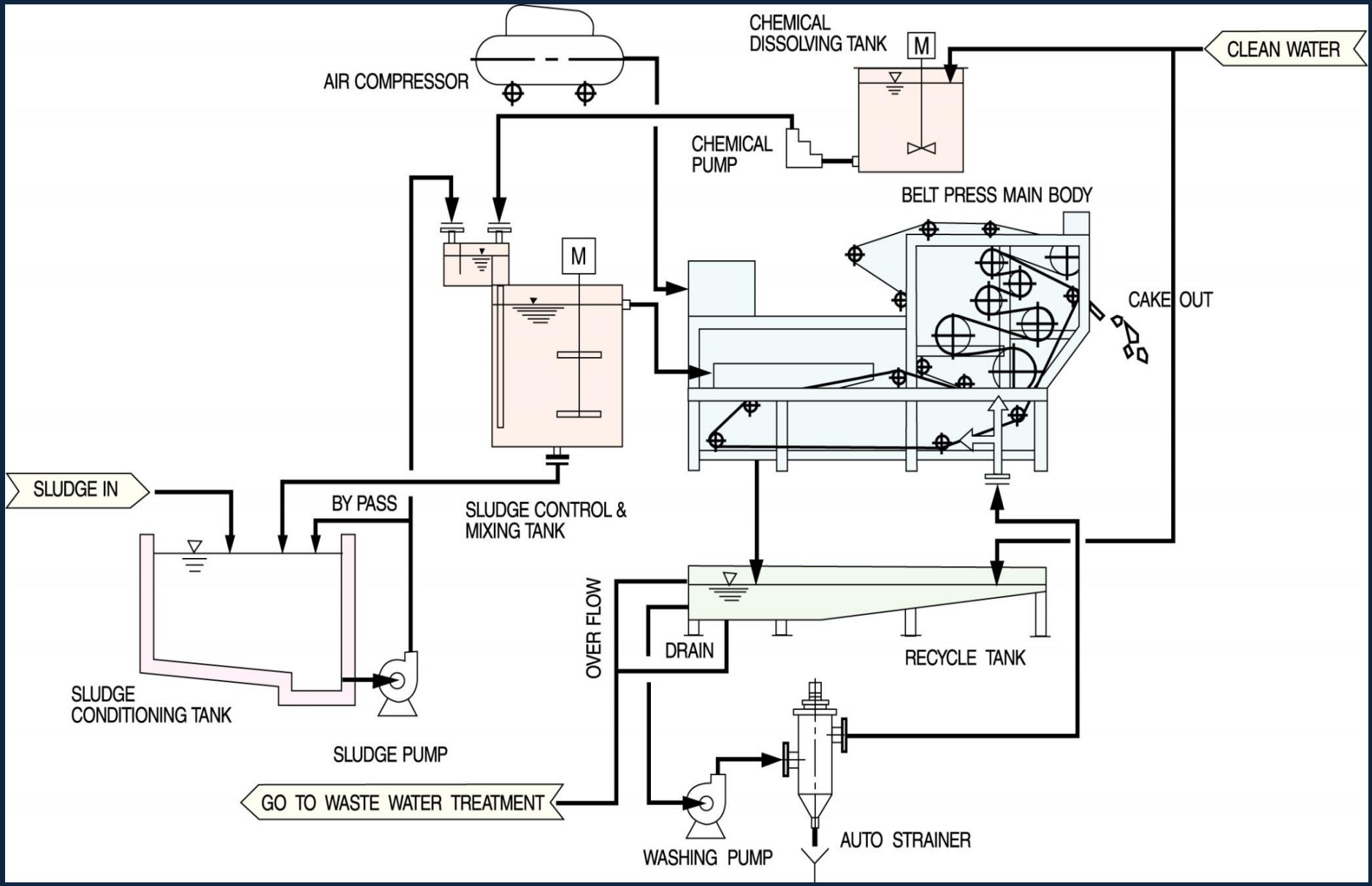
Dimension (mtr)LxWxH	Model	Belt With (mm)	Weight (kg)	Energy Consumption (kw/h)
4.2 x 1.6 x 2.3	HSN-100W	1,000	2,900	0.75
4.6 x 2.8 x 2.5	HSN-200W	2,000	5,300	1.5
4.6 x 3.8 x 2.6	HSN-300W	3,000	10,000	2.6

DEWATERING RATIO
for each section of 6 stage Roller



- Note: Dehydration Ratio depends on Circumstance of Sludge condition

FLOW-SHEET & SUPPLY SCOPE



MAIN BENEFITS

1. High dryness (reduce water level 〉 20%)

① Reduce final cake Volume
② Significant reduction in disposal cost
③ Facilitates storage
④ Transportation using standard vehicles
⑤ Reduce costs of incineration
⑥ Landfill disposal
⑦ Enable energy recovery

2. Low consumption compared to Others

① Minimum operating cost
② Low maintenance cost
③ Long-run Warranty

MAIN BENEFITS

3. Int'l Standard	ISO9001, 14001, KS Standard Superior Quality & Long durability guarantee
4. Various Type Choice	4, 6, 8, 12 Roller Stages choice according to client's require or Sludge conditions
5. 30 years Over References	700 units + Installed into World Market with Much experienced Engineering commissioning service
6. Competitive Price	•Small Investment •Minimum operating cost •Quick Recovery of Investment •Less operation supervision •Easy parts accessibility for maintenance

REFERENCES

OVERVIEW

MANUFACTURING LINE-UP


Core Part Processing

Assembly Processing

4 way


Quality Testing Processing


Outbound Standby

REPRESENTATIVE REFERENCES

More than 3,000 units are Operating in the World

Please Click here to see more detail references list

REFERENCES BETWEEN
2011' ~ 2016
For 6 years

NO	Installed	Clients	Products	Model	Throughput (㎥/hr)	Quantity (Unit)	Sludge Characteristic	Remarks
1	2016. 1	생곡WWTP	Decanter	NRD-420	20	1	Municipal Sludge	
2	2016. 1	안양박달WWTP	Decanter	NRD-550	25	2	Municipal Sludge	
3	2016. 1	안양박달WWTP	Decanter	NRD-720	60	3	Municipal Sludge	
4	2016. 1	성주WWTP	Decanter	NRD-450	25	1	Municipal Sludge	
5	2016. 2	남양주 진건WWTP	Decanter	NRD-650	49	1	Municipal Sludge	
6	2016. 2	안양박달WWTP	Decanter	NRD-720	60	3	Municipal Sludge	
7	2016. 2	나주신도폐수처리시설	Decanter	NRD-270	3	1	Seweage Sludge	
8	2016. 3	용산정수장	Decanter	NRD-420	6~11	2	Inorganic Sludge	
9	2016. 3	정주WWTP	Decanter Thickener	NRT-650	60	3	Municipal Sludge	

REP. LOCAL OPERATING SITES

Seoul area

260 sites
(Joong rang,Nanji etc.)

Kyung pook area

240 sites
(Daegu. Etc.)

Chung cheong area

140 sites
(Dae jeon etc.)

Kyung nam area

150 sites
(Changwon, Ulsan etc.)

Jeolla area

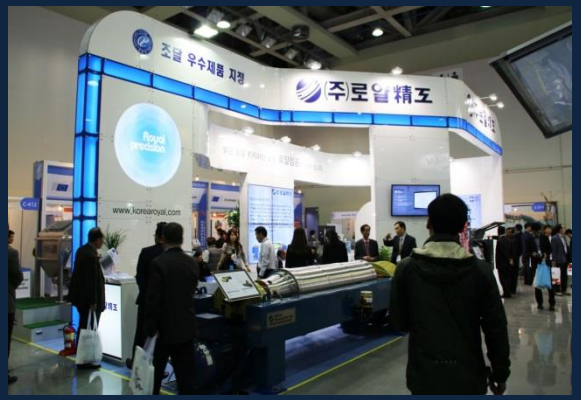
110 sites
(Gwang ju, Jeju)

MAIN CLINETS

- ✓ Over 1,000 regular customers
- ✓ 2,000 end-user consumers
- ✓ More than 3,000 units are operating in Local & Overseas at WTP, WWTP, and Industrial Sites.
- ✓ Top Rank References, The Best performance in Korea
- ✓ Has more than 3,000 sludge experiences.

환경부 Ministry of Environment
GS 칼텍스
CJ 제일제당
LOTTE
LG
Hanwha
HYUNDAI STEEL
KOEN KOREA SOUTH-EAST POWER CO.
LG Display
DOOSAN
KOMSCO Korea Minting, Security Printing & ID Card Operating Corp.
K water
SAMSUNG
청주시 CHEONGJU CITY FIRST-CLASS ECONOMY THE BEST CHEONGJU
SK LOTTE FINE CHEMICAL
SAMSUNG BIOLOGICS
posco
Korea Zinc
Anyang City
CHEONAN-SI
DAEGU METROPOLITAN CITY
posco CHEMTECH

OVERVIEW



- PRESIDENTIAL PRIZE,
- MINISTRY OF ENVIRONMENT VISITING,
- EXHIBITION PARTICIPATING,
- GOVERNMENT WWTP MOU SIGNNING

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

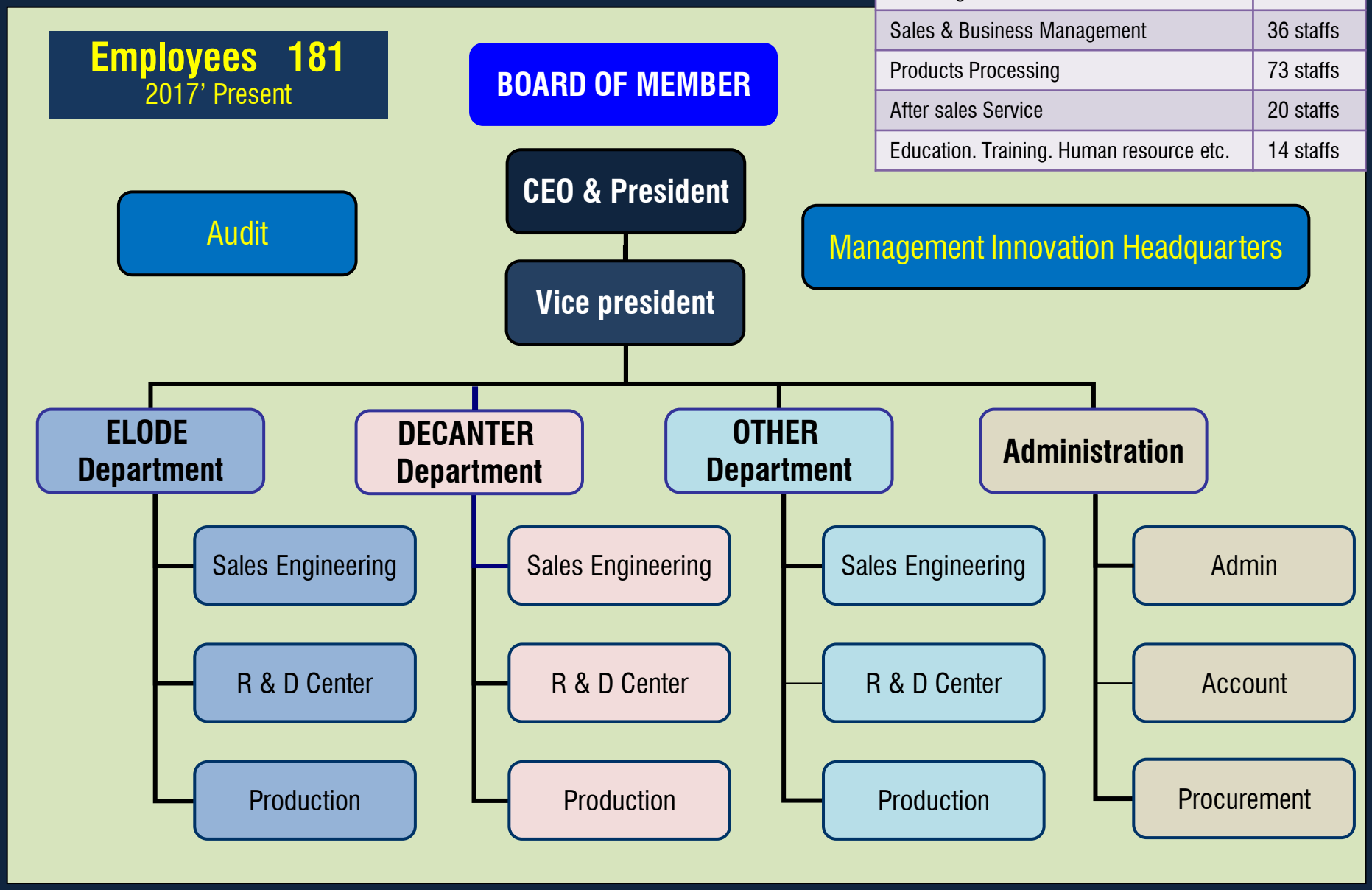
Financial standing for past 3years	• Credit standing: BBB- • Cash Flow : CF2(B) • Turnover: U$68.2mil/year ave.
Bank Information	• Industrial Bank of Korea • KOREA.

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

2nd (Head) Factory in DAEGU. KOREA for

- DECANTER, THICKENER & VALVE Manufacturing

GROUND FLOOR:6,627sqm

CONTACT POINT

BLUEWIN		
e-mail	antoniokim65@gmail.com	www.bluewin.kr
Person in charge	Antonio KIM CEO	Mobile Phone +82.10.5231.8920

SNS:
KAKAO ID: bluesky1965
WeChat ID: antoniokim65
WhatsApp ID: 010-9140-9967

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

THANK YOU