

DELICAP

COMPANY PROFILE



Delicap co., Ltd. 09/2018

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01. ABOUT US

DELICIOUS CAPTAIN

Delicap is a fresh food company headquartered in South Korea. The company makes a range of high-quality simple meals, prepared foods, and packaged fresh foods.

Delicap is driven and inspired by our purpose :
Make the valuable goods and Go together.

We are constantly striving to deliver its customers the best products, including fresh ingredients, taste and nutrition.

We are committed to achieving the best value.



Make The Valuable Goods & Go
가치있는 제품으로 여러분과 함께 합

02. HISTORY

Since 2016.

Delicap started in 2016 as a partner of **GS Retail**. Our promise is to reward our customers with the best products through continuous research, development, and innovation.

PHASE 01

- Delicap was established.



12월

PHASE 03

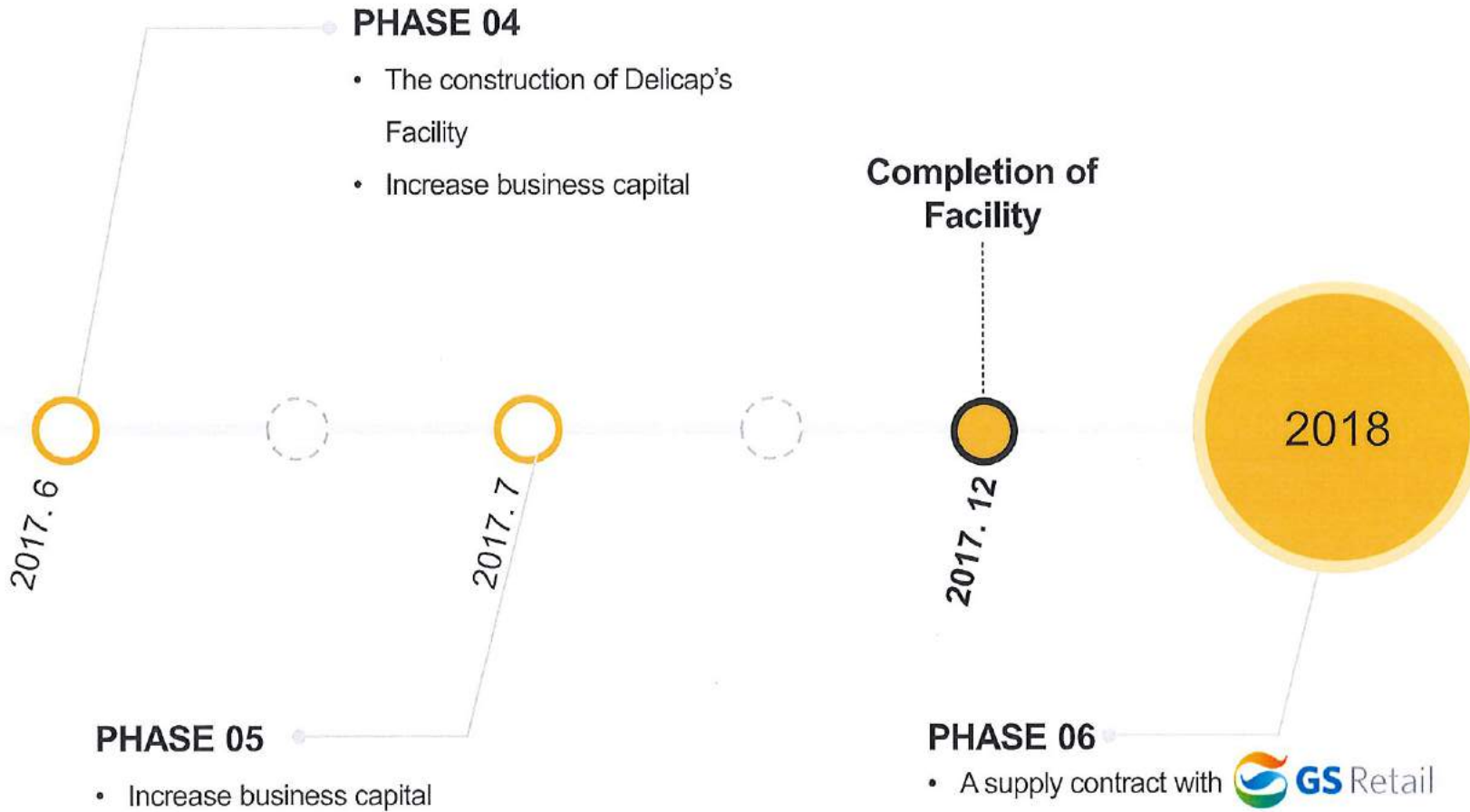
- Establishment of development department

2017.5

PHASE 02

- Confirmation of goods with  **GS Retail**

2017.2

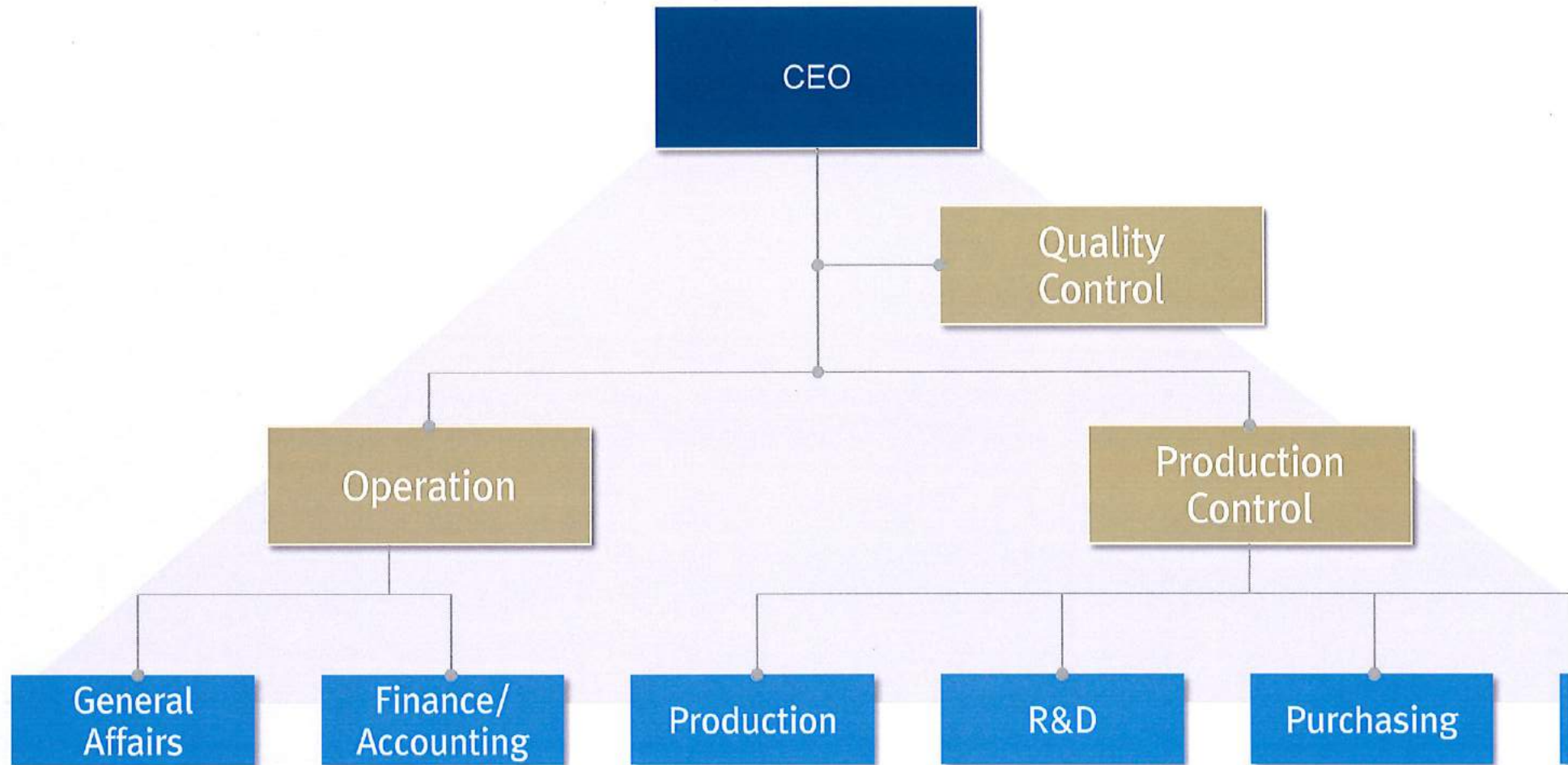


We strive to increase our
20 % every year.

03. DELICAP DATA

DATA			
DATA			
DATA			
Headquarter	42-175, Gyeongbokdae-ro baramgol-gil, Jinjeop-eup, Namyan Gyeonggi-do, Republic of Korea		
	Geumgok Industrial Complex		
Plottage	3,302.5m ²		
Total Areas	1,704.13m ²	Building Coverage	
Plant Size	4,152.25m ²	Floor Area Ratio	
Scale	1 st Basement to 3 Floor		
Constitution	Steel frame		
Floor Areas	Floor	Areas	Use
	Basement	1,320m ²	Waste water disposal facility, Boiler Room, Parking lot
	1,2F	3,491m ²	Storage, Product processing zone, Cooking zone
	3F	660m ²	Office zone

04. ORGANIZATION CHART



“MAKING THE BEST VALUE”

Everything we do flows from our vision. our vision is based on meeting consumers' needs, making food that is healthier and adding enjoyment and taste to our life.



05. BUSINESS PHILOSOPHY

HONESTY

Keeping its own promises, abiding by company rules and regulations, respecting human dignity, performing its task with a fair process, and trusting all of interested parties.

QUALITY

We strive to keep customers happy with top quality, healthy and tasty products. All departments share the same goal.

INTEGRITY

We hope to develop itself by fostering the company, executives and staff under the philosophy of honesty, quality and integrity.

06. COMPANY OVERVIEW



Plant

Delicap produces Kimbob, Dosirak, Samgak Kimbob, and so much more, Since its foundation in 2018, the plant has produced over 10 kinds of excellent food products with safety, flavor and nutrition by obtaining HACCP certification resulting from the establishment of cutting-edge automated facilities with the aim to produce safe and sanitary foods. In addition, Delicap's Plant has been fulfilling its responsibility as a social company by returning parts of its sale profits to the local community.



06. COMPANY OVERVIEW



1st floor : The place is an area hygienic of food processing facilities designed with various machinery for the best product could be manufactured in the most hygienic place.

2nd floor : Cutting/Salad zone is an area for such as vegetables are cutting and washing, mixing automated equipment. Cooking zone cooked according to order status and large quantities of ingredients without damaging the material.

3rd floor : Each workspace is designed to focus on their work for the best products.

07. MANUFACTURING PROCESS

All of Delicap's products are manufactured by state-of-the-art automatic process lines. We believe that delicious foods come from fresh ingredients and the highest in excellent and clean environment.





Main Product Item

The Dosirak market is growing rapidly due to the rise of the single-person household population in Korea.

As consumer demand for quality increases, the market is responding by developing and tastier products.

08. MAIN PRODUCT ITEM

- Onyangsik Bulgogi Kimbob



Feature

- Name : Onyangsik Bulgogi Kimbob
- Type : Reay to eat
- Ingredients : Grilled Bulgogi, Spinach, Pickled Radish, Carrot, Crab stick, Dried laver, Cooked ri

Instruction

- Microwave(1,000W) for 30 seconds
- Carefully remove cover and enjoy

Expiry Date

- After Manufacturing within 48 hours

Package

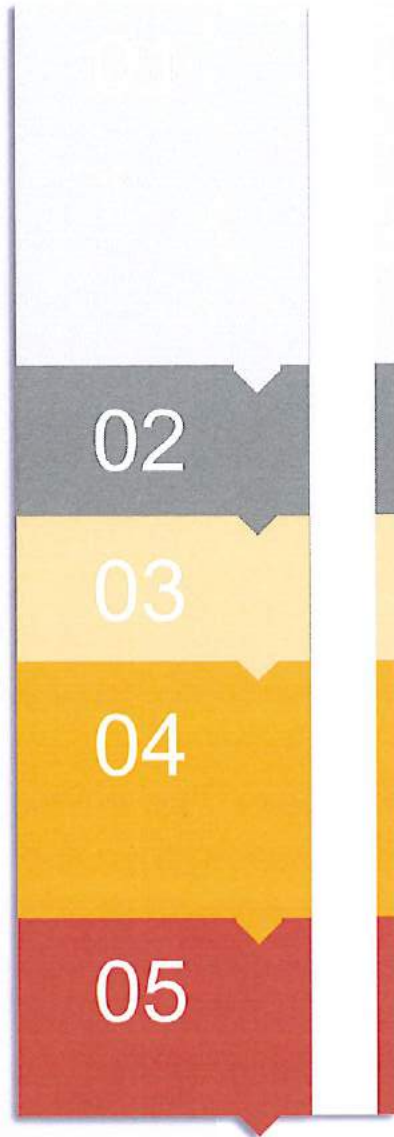
- Package automatically with an automatic packaging machine.
- Package material : PP

Caution

- Please check with the manufacturer regarding warranty and support issu

08. MAIN PRODUCT ITEM

- GoJinMan Dosirak



Feature

- Name : GoJinMan Dosirak
- Type : Reay to eat
- Ingredients : Fried beef and bulgogi, Fried chicken, Dumplings, Pork cutlet, Egg roll, Fried kimchi, Cooked rice

Instruction

- Microwave(1,000W) for 1 min 30 seconds
- Carefully remove cover and enjoy

Expiry Date

- After Manufacturing within 48 hours

Package

- Package automatically with an automatic packaging machine.
- Package material : PP, PET

Caution

- Please check with the manufacturer regarding warranty and support issu



08. MAIN PRODUCT ITEM

- Bacon Tuna Mayo Jumokbob



Feature

- Name : Bacon Tuna Mayo Jumokbob
- Type : Reay to eat
- Ingredients : Cooked Bacon, Tuna, Mayonnaise, Cooked rice

Instruction

- Microwave(1,000W) for 20 seconds / Microwave(700W) for 30 seconds
- Carefully remove film and enjoy

Expiry Date

- After Manufacturing within 48 hours

Package

- Use to automatic package machine
- Package made by PP

Caution

- Please check with the manufacturer regarding warranty and support issu

09. INVESTMENT PLANS

We stabilize productivity while maintaining 100 % operating rate of new facilities introduced in 2018, and increase investment in production lines in 2019 to reduce manufacturing time and maximize sales of new products.

OUR PLAN



10. CERTIFICATION

사업자등록증
(법인사업자)
등록번호: 678-87-00867

법인명(단체명): (주)델리온
대표자: 이정훈

개업연월일: 2016년 12월 19일 | 법인등록번호: 110111-0257005
사업장소재지: 경기도 남양주시 진접읍 금곡리 2053

정점소재지: 경기도 남양주시 진접읍 금곡리 2053

사업의종류: 제조업 서비스업
 도소매업 기타서비스업류 국제서비스업류 기타서비스업

발급사유: 정점

사업자 단위 결제 적용사업자 여부: 예 부(✓)
전자세금계산서 발급 신청유권번호:

2018년 01월 15일

남양주세무서장



 **국세청**

제 2018-0348070 호

영업등록증

대표자: 이정훈 | 영년월일: 1967년12월25일
영양소영양: (주)델리온
소재지: 경기도 남양주시 진접읍 광덕대로149길 42-175, 9999리

영양영역: 5,439.01㎡ | 영영의형태: 식품제조가공업
영영의종류: 식품제조·가공업

조 건: 별 제44조 및 동법시행규칙 제87조에 규정된 준수사항을 이행하고 기타 신고사항의 처리사항을 이행하여야 함.

식품위생법 제37조제5항, 같은 법 시행령 제26조의2 및 같은 법 시행규칙 제43조의2제2항에 따라 위와 같이 등록하였음을 증명합니다.

2018년 01월 11일

진 접 읍

최초신고일자: 2018년 01월 11일

지방자치단체
영역번호: 110111 남양주

HACCP

제 2018-1-9117 호

식품안전관리인증기준(HACCP)

○ 대표자: 이정훈 (생년월일:)
○ 협소영: (주)델리온
○ 소재지: 경기도 남양주시 진접읍 광덕대로149길 42-175, 9999리
○ 식품종류: 즉석편위식품
○ 중요관리점: 소독정공정, 기열(취반, 변) 정숙정공정
○ 유효기간: 2018년 06월 07일부터 2021년 06월 07일까지
○ 조 건:

*식품위생법 제48조제3항·제48조의2제5항 제43조제3항·제43조의2제3항에 따라 식품안전인증입니다.

2018년 01월 11일

한국식품안전관리인증원

제 2018010321 호


벤처기업확인서

업체명: (주)델리온
대표자: 이정훈
소재지: 경기도 남양주시 광덕대로 이499길 42-175
확인유형: 기술보장기업(기술보증기금)
평가기관: 기술보증기금
유효기간: 2018년05월04일 - 2020년05월03일

위 업체는 벤처기업육성에관한특별조치법 제25조의 규정에 의하여 벤처기업임을 확인합니다.

2018년 05월 04일

KIBO 기술보증기금 이사장



[등록번호: (주)K-RRP2-RVT1-KR1] [등록일자: 2017년 05월 23일]

제 2017152679 호

연구개발전담부서 인정서

1. 전담부서명: 개발실
[소속기업명: (주)델리온]
2. 소재지: 경기도 남양주시 김춘로 394 201호 (보통형)
3. 신고연월일: 2017년 05월 22일

미래창조과학부

「기초연구진흥 및 기술개발지원에 관한 법률」 제14조의 2제1항 및 같은 법 시행령 제27조제1항에 따라 위와 같이 기업의 연구개발전담부서로 인정합니다.

2017년 5월 23일

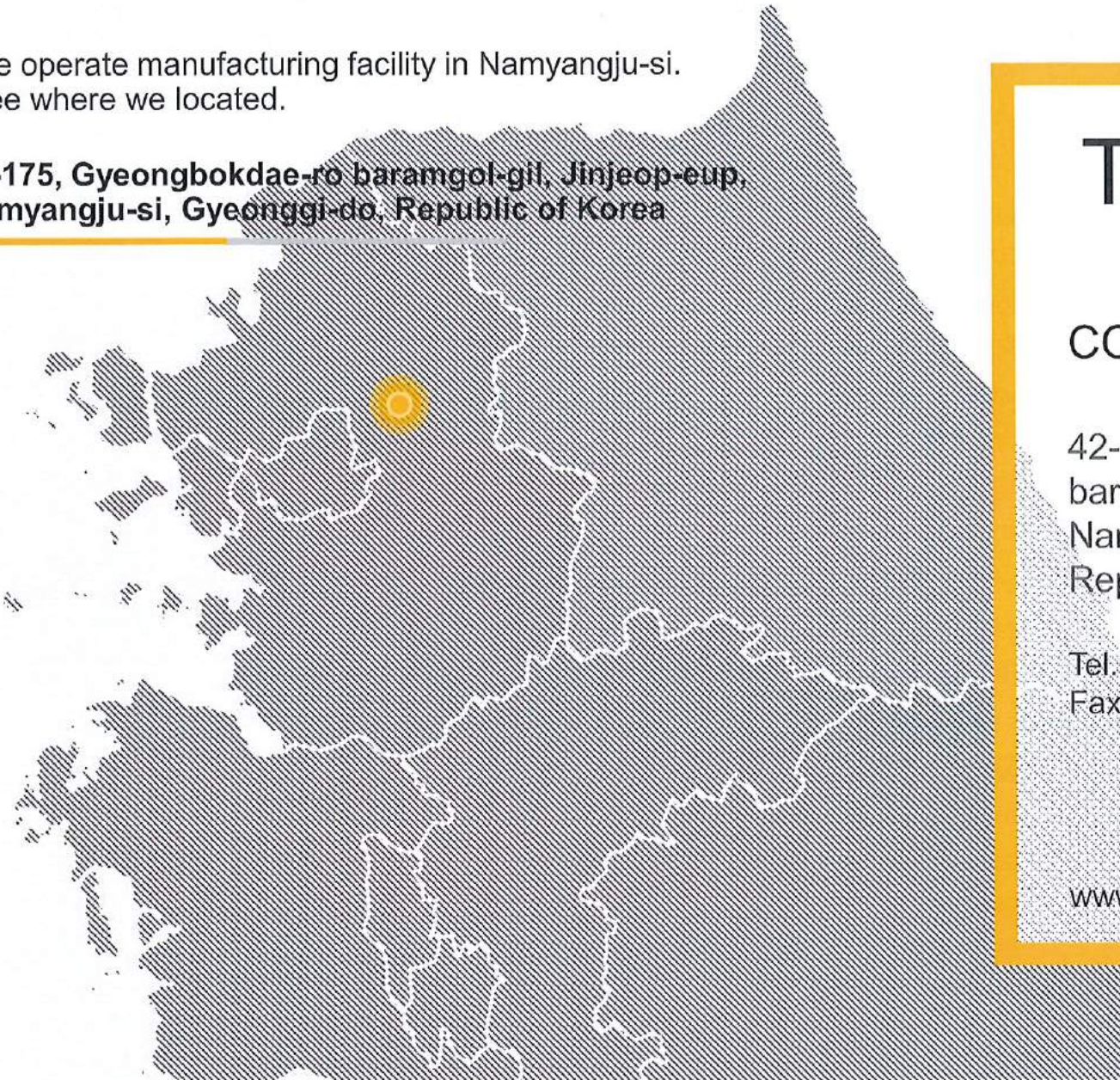
kolta 한국산업기술진흥협회

LOCATION & CONTACT

We operate manufacturing facility in Namyangju-si.
See where we located.

42-175, Gyeongbokdae-ro baramgol-gil, Jinjeop-eup,
Namyangju-si, Gyeonggi-do, Republic of Korea



THANK YOU

CONTACT US

42-175, Gyeongbokdae-ro
baramgol-gil, Jinjeop-eup,
Namyangju-si, Gyeonggi-do,
Republic of Korea

Tel. 031-555-3080

Fax. 031-558-3080

www.i-delicap.com



Company Profile

Eport Co.,Ltd

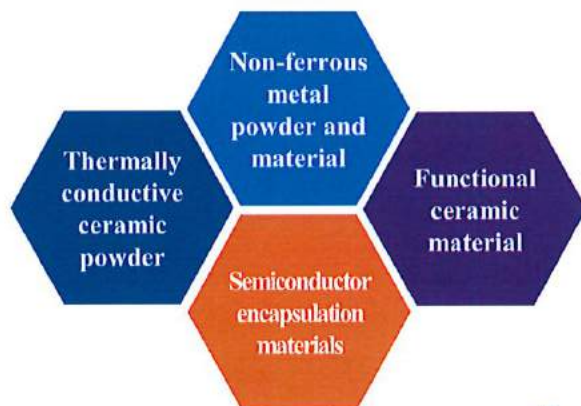


Mar. 2nd, 2021



Company Overview

Company	EPORT Co., Ltd.
Founded	Sept. 19 th , 2017
CEO	Sungjoon, Oh
Capital	100,000,000 KRW
Industry	Manufacturing and Wholesales
Address	65-10, Daram-ro 36beon-gil, Docheok-myeon, Gwangju-si, Gyeonggi-do, Republic of Korea
Number of Employees	5
Contact	(Tel) +82-31-798-6064 (Fax) +82-31-798-6067
Web site	www.e-port.co.kr (Under construction)



Eport Co.,Ltd



‘E’ stands for Electronic

‘PORT’ Stands for a sea port

EPORT has been named so that our company becomes like a port in the electronic industry.

Company History

E-PLUS Optics

2002.08

Specialized trading firm for PCB for chip LED

Korean distributor of Japanese PCB maker for chip LED, such as Nihon Micron and Samhwa Electronics Circuit

Achieved 100,000 pieces/month of PCB supply for chip LED (Over 150 million LED units)

Started exporting construction tools and materials to Japan

Changed the company name to EPORT Trading Co.

EPORT Co., Ltd.

2017.09

2018.02 Established a R&D Dept.

Research & Design of Spherical silica and alumina for EMC

2019.05 Founded a R&D center

2019.11 Designated as a venture company

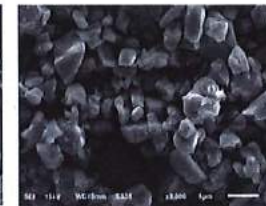
2019.11 Patent registration for ceramic powder (2 Files)

2019.12 Purchased new factory

2020.03 Moved into the new factory



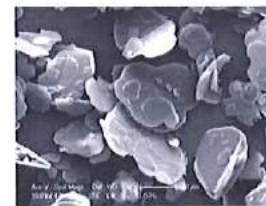
Al₂O₃ (Aluminum Oxide)



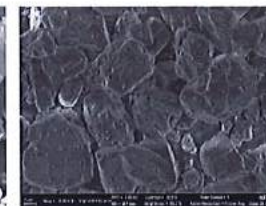
AlN (Aluminum Nitride)



SiO₂ (Silicon Oxide)



BN (Boron Nitride)



Si₃N₄ (Silicon Nitride)



AlO(OH) (Boehmite)

2013.08

Transitioned to a TCM supplier

Transitioned to a Thermal Conductive material(TCM) supplier

Signed contract as agency for Bestry Co.Ltd(China)

Import and sale heat Thermal Conductive ceramic powder such as Al₂O₃, AlN, BN, etc.



Core Business

1. Power Supplier of Thermal Conductive material

- International Sales Network in Korea, Japan, China, etc.
- Acquirement of various raw materials using the worldwide network (China, Japan, India, Israel, etc.)
- Proposal of Thermal Conduction mechanism using various materials such as Al₂O₃, BN, AlN, carbon, metal, diamond, etc.
- Technical consulting on formulation and application

2. A company specialized in R&D of Functional Ceramic Powders

1) Development of Ceramic Powder for memory semiconductor EMCs

- Development of nano high purity alumina synthesis technology
- Development of spheroidizing technology of nano alumina
- Development of spheroidizing technology of nano silica

2) R&D, Design of Ceramic Filler for EMC&TIM

- Mixing Design of Ceramic powder (silica, alumina powder) based on EMC technology
 - > mixing technology of spherical silica or spherical alumina
- R&D of Functional ceramic powder for EMC
- Development of application technology for Thermal Interface Materials



Business Introduction

I. Trading Department

1. Business Scope

- Import and sales of functional ceramic powder and metal powders
- Export of functional ceramic powder and metal powders to Japan
- Export dust collection Air-Mat to Japan (for electronic/semiconductor/medicine/food manufacturing)
- Export of construction tools and subsidiary materials to Japan
- Import and export of other industrial subsidiary materials

2. Products

A. Import Products

- 1) Filler for Thermal Conduction : spherical alumina (Al_2O_3), BN, AlN, β - Si_3N_4 powder, etc.
- 2) Functional filler : spherical silica (SiO_2), high purity calcium hydroxide, high purity calcium oxide, etc.
- 3) Non-ferrous metal: Metal powder such as Al, Cu, Ag powder

B. Export Products

- 1) Functional ceramic powder: spherical alumina, spherical silica, etc.
- 2) Construction tools and subsidiary materials: air tacker, air tacker pin, hose for air tacker, urethane foam spray, urethane foam spray gun, etc.
- 3) Air mat type dust collector for manufacturing electronics and semiconductors, food, medical equipment, and installing entrances to schools and government offices.



I-1. Trading Department : Import

1. Spherical alumina

Avg. Particle Size D50 (μm)	Specific Surface Area	Properties	Purpose
1	2.0±0.5	Purity : ≥99.8% High sphericity, High filling rate High thermal conductivity, High abrasion resistance • Surface coating treatment available according to customer's request (epoxy/silicon)	EMC filler, silicon based thermal conductive material, filler for composite, ceramic filter material, heat sink, gap filler, MCPCB/thermal conductive grease filler, etc.
1.5	2.5±0.5		
2	1.5±0.3		
5	0.5±0.3		
10	0.2±0.2		
20	0.15±0.2		
40	0.12±0.05		
70	0.15±0.05		
90	0.15±0.05		
120	0.12±0.05		

2. Spherical alumina compound for semiconductor encapsulation material

Product No.	Top Cut	Purity	Properties	Purpose
25 μm Cut	25 μm	≥99.8%	High fluidity, high thermal conductivity	Filler of semiconductor encapsulation material that requires high heat dissipation such as fingerprint recognition and power semiconductor
35 μm Cut	35 μm	≥99.8%		
55 μm Cut	55 μm	≥99.8%		
75 μm Cut	75 μm	≥99.8%		

I-1. Trading Department : Import

2-1. Silica Material : Spherical Silica

Type	Particle Size(D50), μm	Specific Surface Area(S.S.A), m^2/g	Purpose
SP3-1000	1.0 \pm 0.3	7.00 \pm 3.00	Resin filler, Filler for semiconductor encapsulation material (EMC)
SHA-0020	2.0 \pm 0.5	9.00 \pm 3.00	
SHA-0065	6.5 \pm 0.5	1.20 \pm 0.30	
SHA-0100	10.0 \pm 1.0	1.00 \pm 0.20	
SHA-0200	20.0 \pm 2.0	0.50 \pm 0.10	
SHA-0300	30.0 \pm 2.0	0.40 \pm 0.10	

2-2. Silica Material : Porous silica

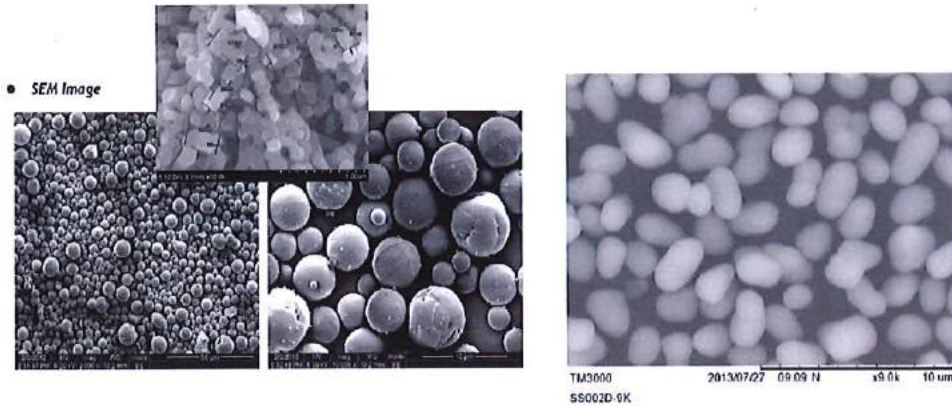
Product No.	Avg. Particle Size	Purity	Properties	Purpose
SS-002D	2.5 μm	$\geq 99.6\%$	High S.S.A. improves physical performance such as bending strength and pencil hardness of engineering plastics. Light weight, low melting point, excellent resin compatibility, excellent dispersibility, etc.	CCL, EMC, resin, rubber, plastic, light diffusing agent for LED, modifier for PET, PMMA, PP, anti-blocking agent, reduce the wear rate of drill bit when forming PCB circuit
SS-004D	4.5 μm	$\geq 99.6\%$		



2-3. Silica Material : Crystalline silica

Product No.	Avg. Particle Size	Purity	Properties	Purpose
HA0020	2 μm	$\geq 99.8\%$	High purity of 99.8% or more, high whiteness, discoloration resistance, high electric insulation (removal of conductive particles), high heat resistance, excellent dispersibility, low oil absorption, and uniform particle distribution	Improvement of dispersibility/water resistance/rust prevention of paint, improvement of leveling and hardness of coating film, improvement of storage stability of paint, improvement of dispersibility and workability in rubber industry, improvement of rollability/extrudability, PP, PVC, PE enhancer, etc.
HA0050	4 μm	$\geq 99.8\%$		
HA0100	10 μm	$\geq 99.8\%$		
HA0200	20 μm	$\geq 99.8\%$		
HA0300	30 μm	$\geq 99.8\%$		
HA0400	40~50 μm	$\geq 99.8\%$		

3. Product Images



Functional ceramic powders



Dust collecting air mat



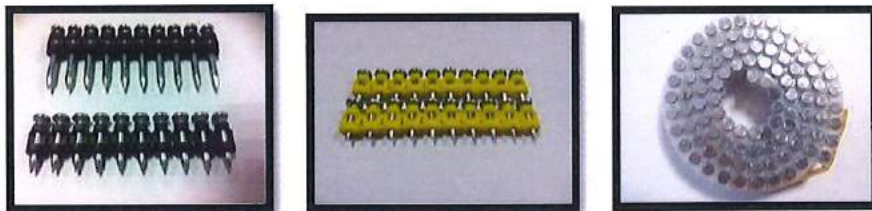
Air tacker



Urethane foam spray



Urethane foam spray gun



Air tacker pins



Medium pressure hose for air tacker

II. Company-affiliated R&D Center

1. Purpose of Establishing the Research Center

- Development of synthesis and mixing design technology of ceramic filler for EMC
- Application Technology of Thermal conductive ceramic powder

2. Development Details

1) Synthesis of alumina raw material for EMC

- Development of synthesis technology of high purity alumina (Al_2O_3) using own technology
- Development of spheroidizing technology of Ceramic powder

2) Development of mixing design and evaluation technology of ceramic filler materials for EMC

- Mixing design of functional ceramic powder for EMC
- Development of technology for evaluating flow characteristics, surface characteristics, thermal conduction properties of mixed powder.

3) Development of application technology for thermal conductive material

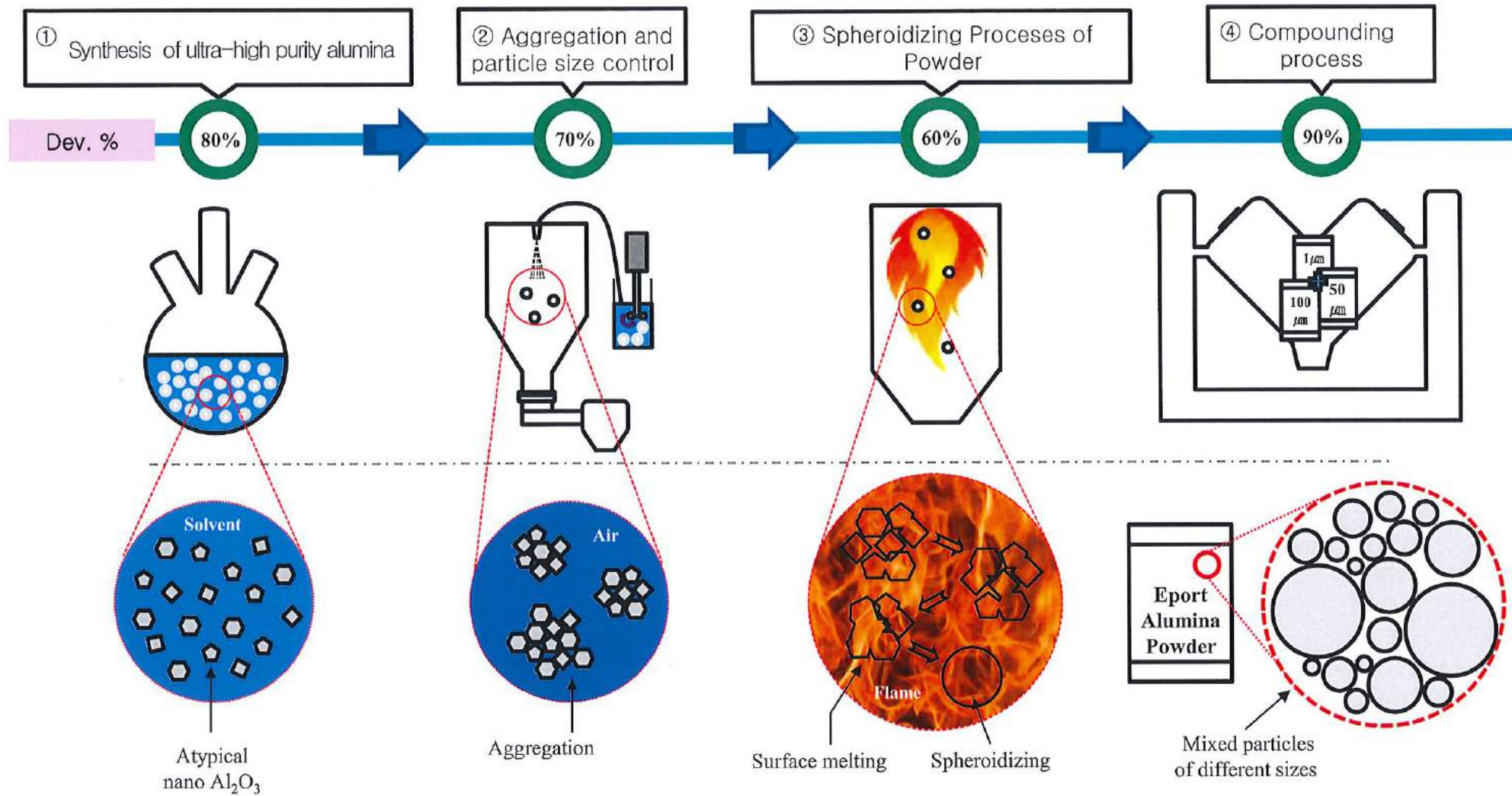
- Choose of Optimal mixing ratio for best flowability.
- Choose of Best material for high thermal conductivity

4) Surface Treatment of Functional ceramic powders.



4) Development process

Ex) Manufacturing process and technical development for Spherical Al_2O_3

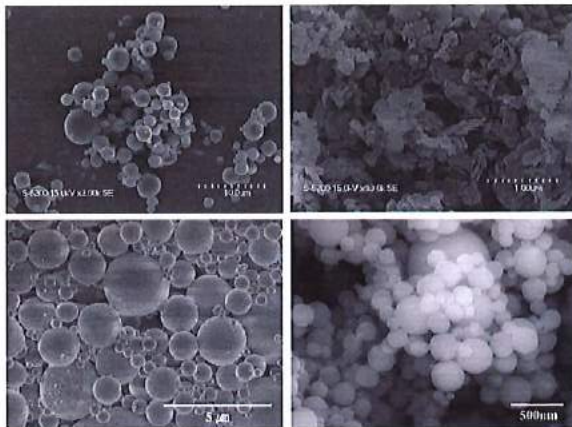


3. EPORT's Technology

- High purity nano alumina manufacturing technology using wet-chemical synthesis
- Spheroidizing technology of ultra-low uranium silica
- Ceramic powder mixing technology that maximizes flowability
- Technology of evaluating the flowability of raw materials for EMC

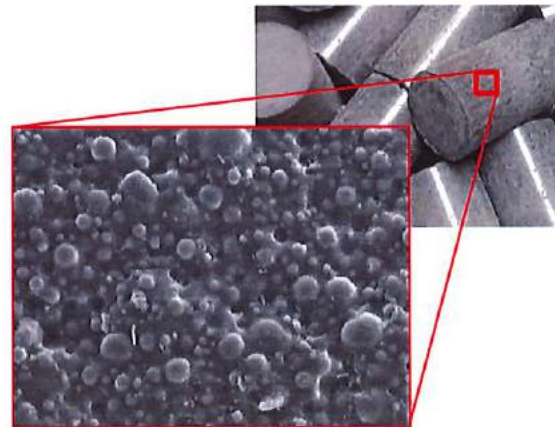
Synthesis of Ceramic Powder

- Synthesis of Ceramic powder



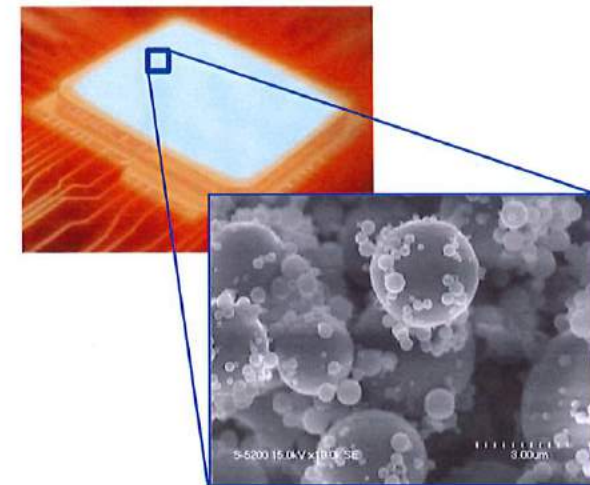
Ceramic Fillers of EMC (Epoxy Molding Compound)

- Applied to various EMC
 - MUF (Molded Underfill)
 - AP (Application Processor)
 - WLP (Wafer Level Package)
 - FR (Fingerprint Recognition)



Ceramic Fillers for Thermal Conductive Products

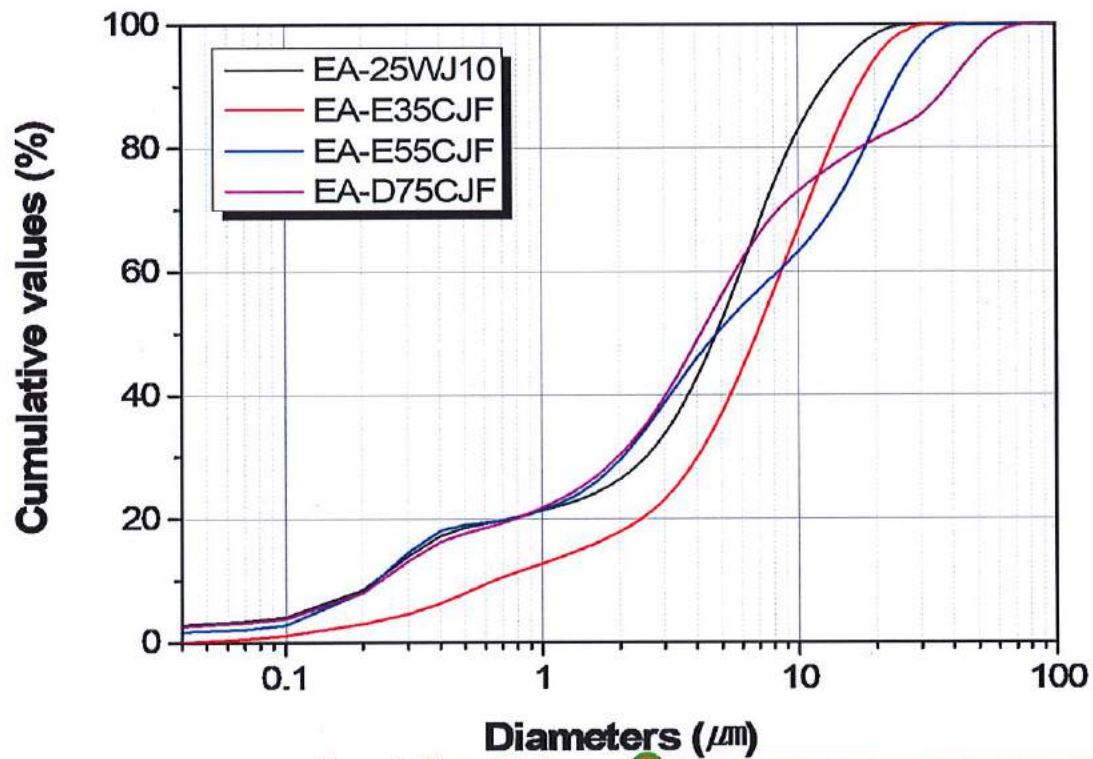
- Applied to
 - Molding for Thermal Conductive
 - Thermal Conductive Sheet
 - Thermal Conductive Pad



4. Research Results

1) Developed product: Completed development of spherical alumina compound for EMC

Product No.	Top Cut	Purity	Properties	Purpose
25 μm Cut	25 μm	$\geq 99.8\%$	High flowability, high thermal conductivity	Filler for EMC that requires high Thermal conduction such as fingerprint recognition and power semiconductor
35 μm Cut	35 μm	$\geq 99.8\%$		
55 μm Cut	55 μm	$\geq 99.8\%$		
75 μm Cut	75 μm	$\geq 99.8\%$		





**EPORT Co., Ltd. will grow with its priority of trust
and integrity.**

Thank you.





Introduction to YOULCHON CHEMICAL Co. LTD

栗村化学株式会社の企業紹介

2021 Version

Contents

目次

- ① グループ紹介
 - ② 会社紹介
 - ③ 事業部門
 - ④ 組織構成
 - ⑤ 沿革
 - ⑥ 実績指標
 - ⑦ 主な事業内容
 - ⑧ 技術や研究
 - ⑨ 所在地 (Contacts)
-
-  別添資料。製品御紹介



YOULCHON CHEMICAL

01

グループ紹介

農心(ノンシム)グループは純粋持株会社の**農心ホールディングス**を母体とし、
 韓国に(株)農心と栗村化学(株)の上場会社を保有した企業集団です。
 (株)農心の代表商品である辛ラーメンは
 全世界約100カ国以上販売されています。



食品企業群



農心
 ラーメン、スナック
 食品専門企業



泰耕農産
 ソース類、飲み物



農心微分
 米加工

産業群



農心エンジニアリング
 設備機械エンジニアリング

農心ホールディングス



栗村化学
 包装材、フィルム、
 電子用素材専門企業

化学群



農心企画



NDS

企画IT



メガマート



農心開発



ホテル農心

流通生活群



YOULCHON CHEMICAL

02

会社紹介

ミッション.

「コーティングにより生活空間の限界を克服する。」

未来の便利な生活環境を提供する製品のため 技術、環境、生産での限界を解決可能なコーティングソリューションを提供

ビジョン.

「人、物が自由につながる世界」

コーティング製品で世の中の便利さを提供する。

会社概要

- ・ 会社名: 栗村化学株式会社
- ・ 設立: 1973年 5月 1日
- ・ 代表者: 辛東崙 / 宋祿政
- ・ 本社: 大韓民国 ソウル 銅雀区 汝矣大方路 112 (新大方洞) 農心ビル道延館15階
- ・ 主な事業内容:
 - ① 食品および各種包装材の製造および販売
 - ② 素材関連機能性フィルムの製造および販売
 - ③ リチウムバッテリーの外包材、部材(LIBP)
 - ④ 合成樹脂および同製品の製造、加工および販売
 - ⑤ 段ボール箱の製造および販売
 - ⑥ ラミネートチューブの製造および販売
- ・ KOSPI (Korea Composite Stock Price Index) 証券市場に上場 (1988年8月30日)
- ・ 韓国政府より素材部品専門企業認証及び素材部品技術の大統領表彰(2019年)
- ・ 韓国政府(科学技術部)から技術研究所が優秀企業研究所に指定(2020年)



韓国のソウルに位置する栗村化学本社の全景



YOULCHON CHEMICAL

03

事業部門

包装、フィルム、電子素材の3つの事業部門を通じてコンバーティング分野に貢献しています。

01 包装部門



軟包装材

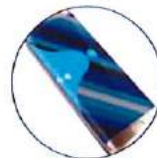


電子、産業用



段ボール

02 電子素材部門



PSA、ハードコート



電池部材(LIBP)



剥離フィルム

03 フィルム部門



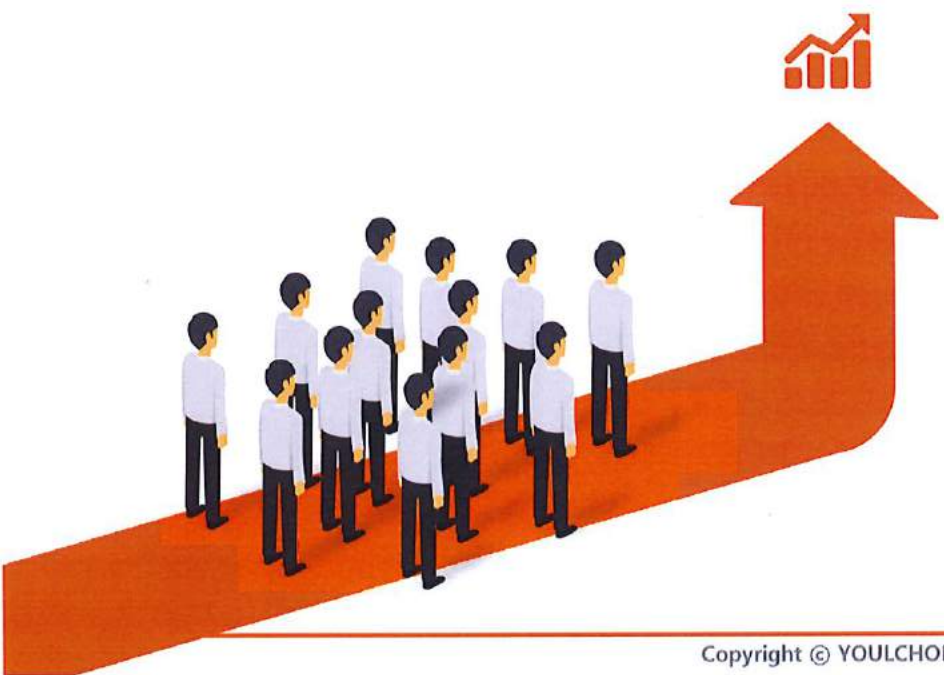
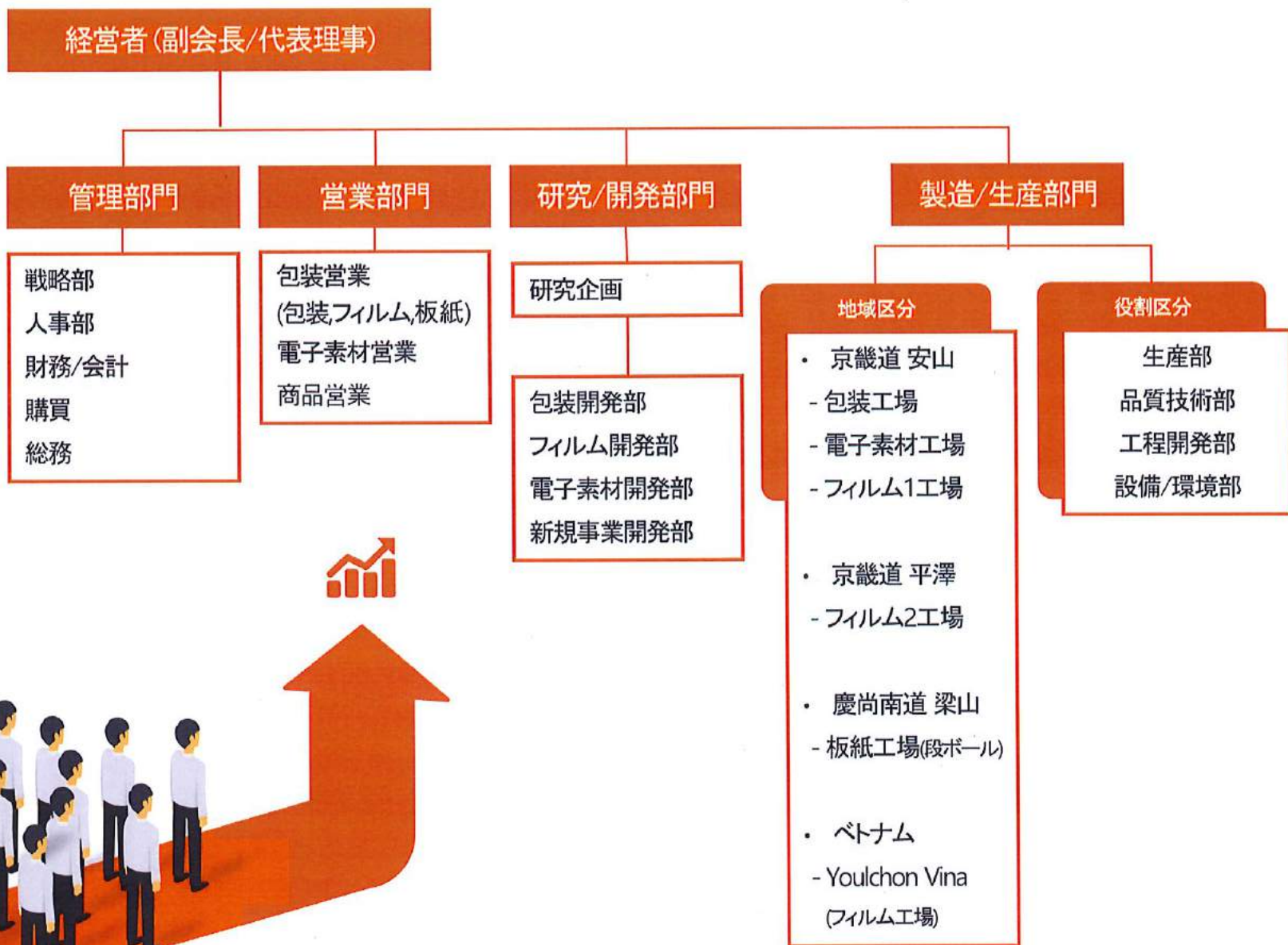
BOPPフィルム



CPPフィルム



シュリンクフィルム

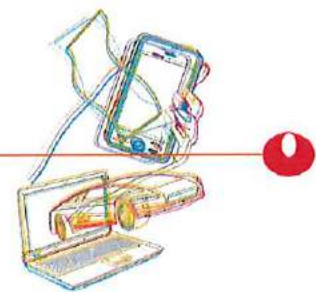




コンバーティング企業への跳躍

事業群の多角化時期

包装材から出発して確立されたコーティング、成膜などの技術を通じてフィルム、電子や産業素材分野へ事業領域を拡大してきました。



1970's



軟包装材の専門生産

会社設立
農心への供給センターとして軟包装材を生産

1980's



総合包装材会社への跳躍

様々な軟包装材の供給
フィルムと段ボール生産

1990's



研究中心企業への跳躍 / 多様な包装材供給体制

技術研究所新設
包装事業拡大(ラミネートチューブ、キャリアテープ、PPシュリンクフィルム市場に参入)

2000's



生産技術の進歩 / 電子、産業素材本格進出

環境にやさしい生産ライン(インク調色機、溶剤回収システム)の拡充
CPPフィルム、剥離紙、粘着コーティング市場に参入



2010's



先端素材分野のインフラ拡充 / 電子、産業素材高度化

技術研究所新社屋竣工及び
本格的な電子素材コーティングフィルム市場に参入(二次電池用LIBP,剥離・ハードコートフィルムなど)
大韓民国政府の素材部品企業認証及び大統領表彰受賞(2019年)



YOULCHON CHEMICAL

06

実績指標

数字で見る栗村化学

5207

 億ウォン (KRW)

売上高



147.8 億ウォン
資本金

828 名
従業員数

1294 億ウォン
電子素材売上高

70 名
研究員数

75 %
包装, フィルム比重

25 %
電子素材比重

45 年以上の歴史

10 台の電子産業用コーター

6 カ所の製造工場

5 つ以上の
韓国国内1等製品

1 兆売上高に向かう。

A+ 信用格付等級

売上高の成長率 (2010年対比)

51.9 %

2020

 年

基準





包装/フィルム部門

栗村化学は韓国内でマーケットNo.1の包装材、OPPフィルム製造企業として総合包装材、フィルムメーカーへと躍進しています。

包装部門



- ・ 環境にやさしい工程技術に特化(韓国唯一のインク自動調色や溶剤回収設備を運用)
- ・ 画像処理製版工程及び印刷、接着、スリットまで「ワン・ストップ」の一貫製造システムを保有

フィルム部門



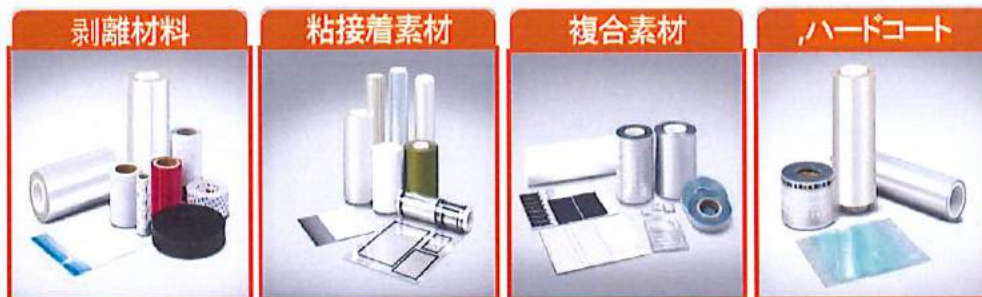
- ・ ポリプロピレン(PP)系Filmのすべてのアプリケーションを提供
- ・ 高厚膜製品、合成紙、バリア蒸着フィルム、収縮フィルム等お客様が求める多様な機能に対応



電子素材部門

栗村化学は高品質のグラビア印刷、精密コーティングとラミネーション技術、フィルム製造技術をもとに、IT産業や製造業を支える先端産業素材生産の夢を実現しています。

製品種類 / 特徴



- ・ シリコンコーティングを利用した電子用剥離フィルムの韓国No.1企業
- ・ 光学用、電子用に使われるPSA、ハードコート、伝導性フィルムなどの様々なコーティングフィルム
- ・ 5G製品に対応する遮蔽、吸収、防水、防塵素材
- ・ エネルギー対応型製品群(例. 2次電池ポーチやリードタブ)

インフラ差別化

- ・ クリーン環境内に構築されたワン・ストップ工程により無欠点の製品生産が可能
工場内クリーンレベルはクラス1,000、コーティング部はクラス100
- ・ 熱、UVの二つの硬化方式をすべて保有。
- ・ 最大幅1,850mm剥離フィルムのシリコンコーターを保有。
- ・ クリンルーム内に幅550mmのパイロット・マルチコーター保有(交換式コーティングヘッド)
- ・ 新規設備の稼働開始により、最大幅2,300mmフィルムへのコーティングが可能。



電子素材工場内コーター

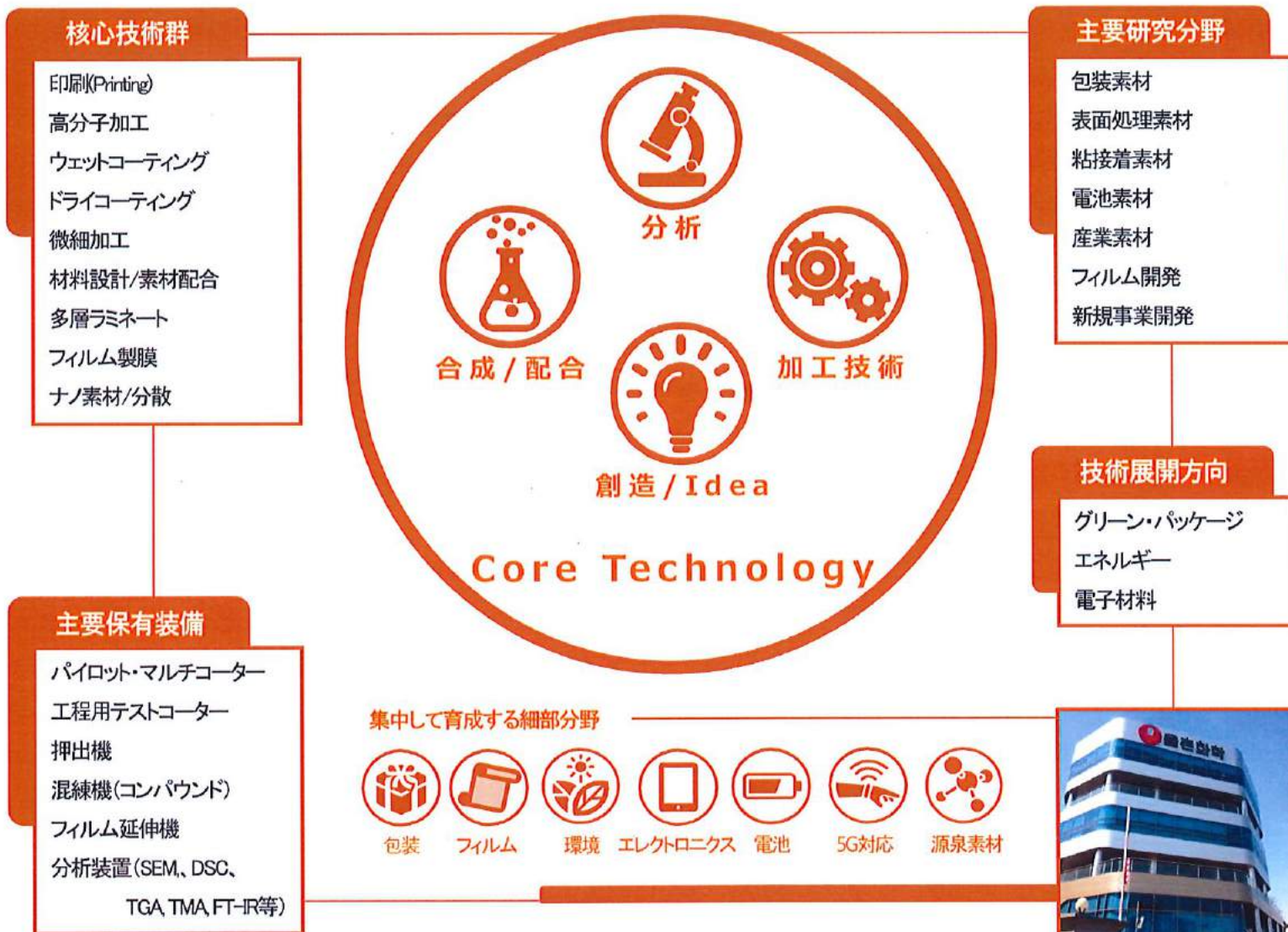


YOULCHON CHEMICAL

08

技術や研究

栗村化学の持続成長に向けて、
技術研究所は中核事業を基盤に革新的な新規事業の創出を進めています。



韓国の京畿道安山に位置する技術研究所の全景



YOULCHON CHEMICAL

09

所在地



Head Office. | 本社

〒07057 ソウル特別市銅雀区汝矣大方路112(新大方洞)農心ビル道延館15階
TEL:+82-2-822-0022(代表案内) FAX:+82-2-824-0957(管理部)/+82-2-821-0956(営業部)



Packaging Division. | 包装事業部門

〒15597 京畿道安山市檀園区元時路143(元時洞)
TEL:+82-31-489-7200 FAX:+82-31-491-3956



Electronic Materials Division. | 電子素材事業部門

〒15430 京畿道安山市檀園区ボムジキ路78(元時洞)
TEL:+82-31-489-7000 FAX:+82-31-489-7002



Research & Development Division. | 技術研究所

〒15430 京畿道安山市檀園区ボムジキ路78(元時洞)
TEL:+82-31-489-7000 FAX:+82-31-495-4913



Film Division. | フィルム事業部門

〒15598 京畿道安山市檀園区元時路97(木内洞) TEL:+82-31-489-7555 FAX:+82-31-494-2956

Main Factory. 〒17958 京畿道平澤市浦升邑平澤港灣道 246 TEL:+82-31-680-2800 FAX:+82-31-680-2890

** 海外事業所(ベトナム) : YoulchonVina

Lô K-3-CN, Khu công nghiệp Mỹ Phước 2, phường Mỹ Phước, thị xã Bến Cát, tỉnh Bình Dương, Việt Nam.

TEL:+84-02743-556-017 FAX : +84-02743-556-018



Corugated Board Division. | 段ボール事業部門

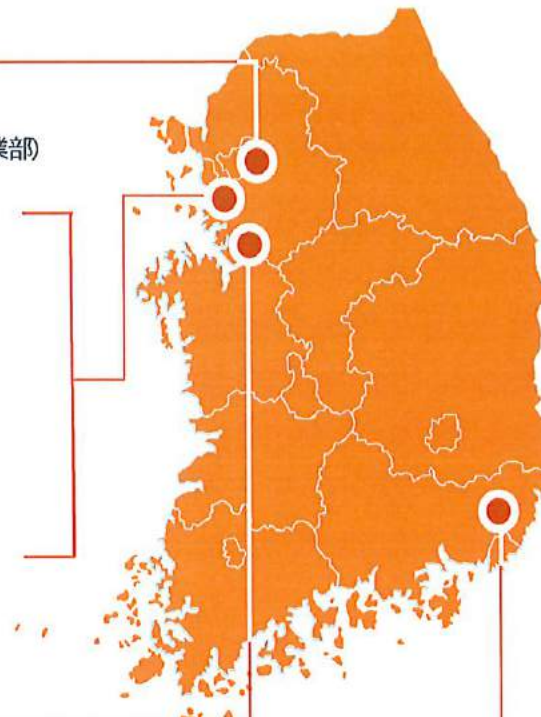
〒50592 慶尚南道梁山市由山工団4道7(由山洞)
TEL:+82-55-370-6200 FAX:+82-55-370-6299

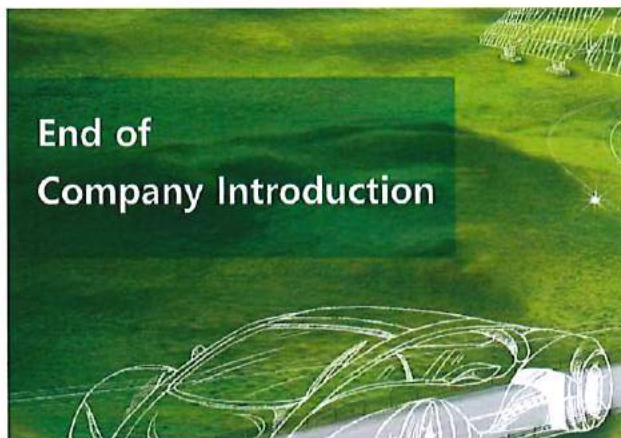


Tokyo Office. Japan. | 東京事務所

〒100-0013 東京都千代田区霞が関1-4-2 大同生命霞が関ビル4階 TEL:03-3595-0880 FAX:03-3595-0864


部長 張(ジャン)成勳 jash@youlchon.com | 課長 金(キム)楨憲 y213032@youlchon.com | 課長代理 辛(シン)始烈 ssy@youlchon.com

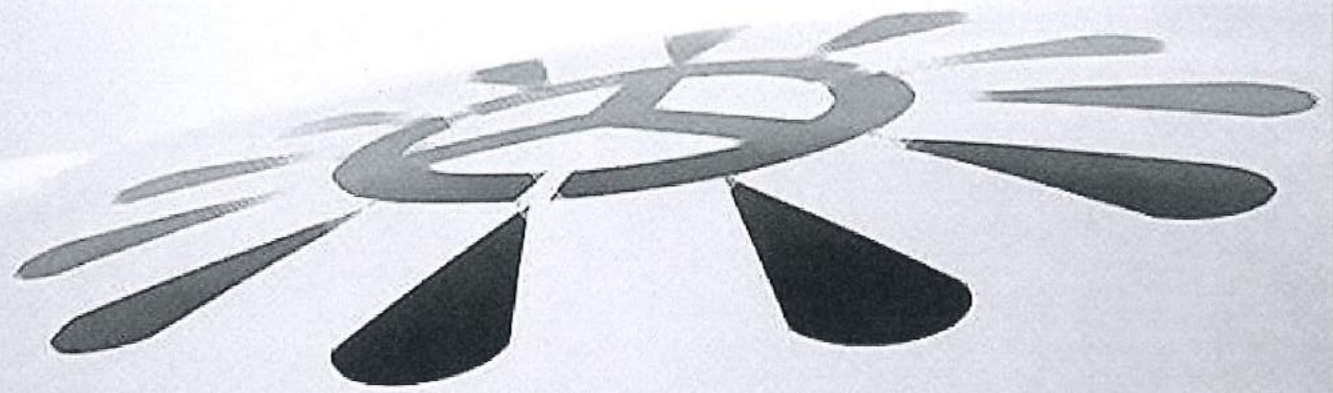




栗村の創造がさらに進めば
地球の新しい未来が始まります。

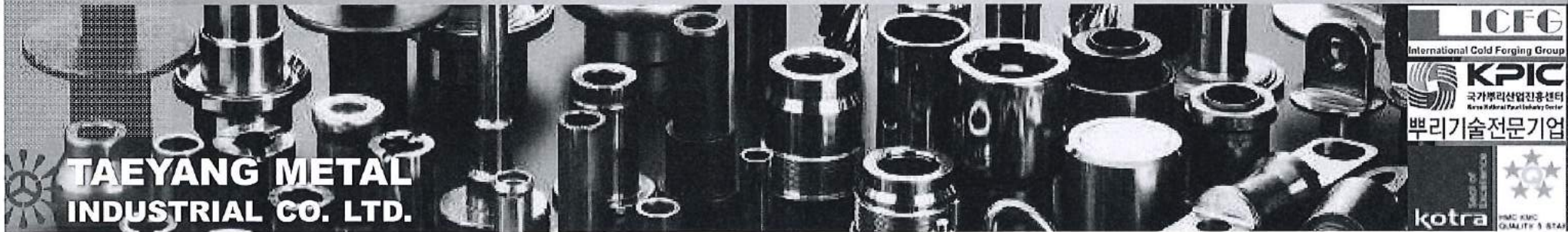
2021 Version

 栗村化学株式会社



TAEYANG METAL's

BUSINESS OVERVIEW



TAEYANG METAL
INDUSTRIAL CO. LTD.

ICFG
International Cold Forging Group

KPIC
국가부리산업진흥센터
Korea Metal Tool Industry Center
뿌리기술전문기업

kotra
Korea Trade Promotion Agency
KINC KMC
QUALITY & STAY

Contents

1. Company Introduction

- Company Overview
- Product Library
 - Major cold forging products
 - Assembly & other parts
- Major Customers
- Global Footprint
 - Overseas plants

2. R&D Capabilities

3. Conclusion



Company Introduction

 **Tougher, Lighter and Fewer**

 **TAEYANG METAL INDUSTRIAL CO., LTD.**

Taeyang Metal Industrial Co., LTD.

Panoramic view



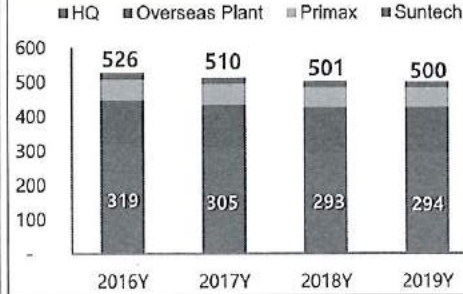
▪ Land: 15,654sqm, Building: 12,816sqm

Overview

Company	Taeyang Metal Ind
Chairman	Mr. Woo Sam Hahn
Established	1954.Mar.1
Head Office	Ansan City, Korea
Capital	20 Billion KRW
Employees	650
Capacity	85,300 tons

Sales

(Unit: Mil USD)



History

- 1954 Founded Taeyang Bicycle Enterprise Co
- 1964 Changed company name to Taeyang Metal
- 2000 Certified as a nationally accredited lab (KOLAS)
- 2004 Established Yantai Taeyang Metal Co
- 2006 Established Taeyang America & India Co
- 2007 Established Taeyang Metal (Zhangjiagang) Co
- 2010 5-STAR Certificate by HKMC (only CO. in field)
- 2017 Received GM SQE Award, 5th year in a row
- 2018 Received GM SOY (Supply of the year) Award

Major Products

Engine

- CYLINDER HEAD BOLT
- CONNECTING ROD BOLT
- BEARING CAP BOLT



Steering

- TIE ROD PIN
- BALL HOUSING
- BALL STUD



Drivetrain

- HUB & UNION BOLT
- FLY WHEEL BOLT



Brake

- GUIDE ROD & TIE BAR
- BOOSTER PUSH ROD
- SPINDLE ASSY. (EPB)



Body & Chassis

- LUG WRENCH
- CAMBER BOLT
- STUD & U BOLT



Electronic & Others

- COMPRESSOR BOLT
- HEX & WRENCH BOLT
- SCREW



Key Customers

Korea

- HMC/KMC
- GMK
- Mobis
- Mando
- Ssangyong

USA

- GM
- DMAX
- Chrysler
- FCA
- Metaldyne

Japan

- Subaru
- Mazda
- Adient
- Sankei
- Sanko

China

- ZF-TRW
- Honeywell

India

- BorgWarner
- Magal tech

Others

- THK
- AJUSA

Group Structure

Korea

- HQ (Ansan)
- Suntech
- Primax
- Changwon Office
- Ulsan Office
- Gwangju Office

China

- Yantai Plant
- ZJG Plant

NA

- Michigan
- Kentucky
- Saltillo

India

- Chennai Plant

R & D

- Join as 7th official member of ICFG (Sept 2015).
 - Top Experts in Cold Forging, member of ThyssenKrupp and 6 others.
- Appointed as expert Co. in foundation tech. in MFG. industry (Sep. 2014)
 - Technology Range - Ultra Precision Cold Multifold Forming
- Obtains various patents with bold investment in R&D.
 - Rolling dies for long bolts and tie-rods / tie rod for break booster

"Top Technology, Prompt Action for World Wide Customers"

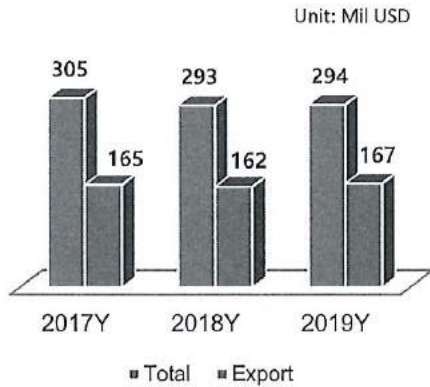
Value of Customer First With Deep Impression

Tougher, Lighter and Fewer

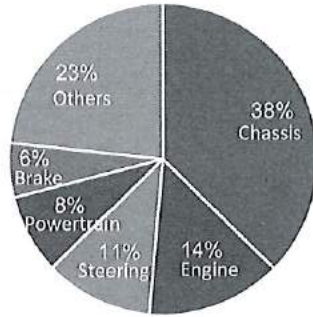
TAEYANG METAL INDUSTRIAL CO., LTD.

Company Overview

Historical Sales



Sales by Product



Company Milestone

- 1954 Established Taeyang Bicycle Enterprise Co
- 1964 Changed company name to Taeyang Metal Industrial Co., Ltd.
- 2000 Nominated as an Authorized Laboratory by KOLAS
- 2006 Established Taeyang America, India & China Corporation
- 2007 Established 2nd China plant in Zhangjiagang
- 2010 Received Quality 5 STAR Certificate from Hyundai Kia Motors Corp.
- 2011 Achieved 100 Million USD Export Sales prize from KITA
- 2017 Received GM Supplier Quality Excellence Award the 5th year in a row
- 2018 Awarded as Supply of the year from GM

Company Profile

Company	Taeyang Metal Ind. Co., Ltd.
Chairman	Mr. Woo Sam Hahn
Established	March 1, 1954
Business Location	212 Haebong-ro, Danwon-gu, Ansan-si, Gyeonggi-do, Korea
Capital	USD 20 Million
Employee	650 people
Production Capacity(2017)	85,300 tons

Certification Status



Tougher, Lighter and Fewer

 **TAEYANG METAL INDUSTRIAL CO., LTD.**

Business Status for EV

E-TORX Flange bolt (10types)

- > Part size : M5~10 x 12~200mm
- > Contract Vol. : 22.1Mil. Pcs (SOP:2019)
- > Raw material : SCM435

E-TORX Wrench bolt (3types)

- > Part size : M5~8 x 12~16mm
- > Contract Vol. : 1.3Mil. Pcs (SOP:2019)
- > Raw material : SCM435

E-TORX Plug (1type)

- > Part size : M18 x 95mm
- > Contract Vol. : 0.8Mil. Pcs (SOP:2019)
- > Raw material : SCM435



Customer : Nidec

Application



(Electric motor)

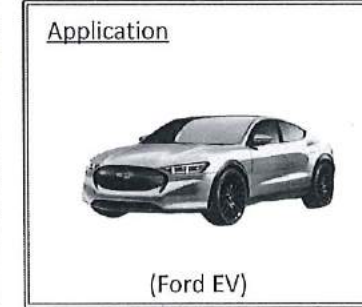
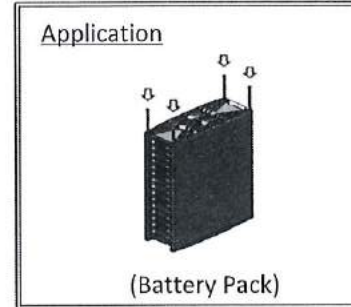
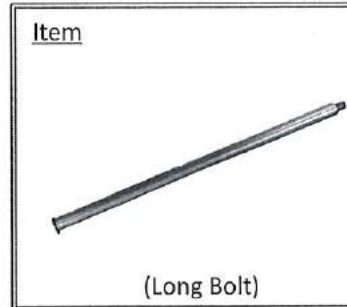
Application



(GAC Group EV)

Long Bolt (4types)

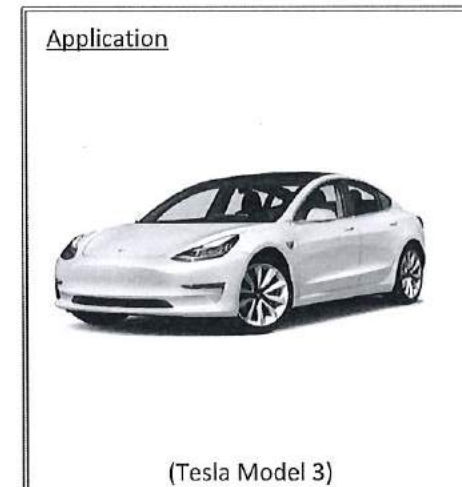
- > Part size : M5 x 400~523mm
- > Contract Vol. : 3.3Mil. pcs (SOP:2020)
- > Raw material : S45C



Customer : LG Chem

Steering parts (3types)

- > Part size : M14~41 x 54~235mm
- > Contract Vol. : Total 2.4Mil. pcs (SOP:2017)
- > Raw material
 - Ball housing : SWCH45K
 - Ball stud : SCM435
 - Tie rod : ESW85



Customer : Mando

Engine Components

- CYLINDER HEAD BOLT
- CONNECTING ROD BOLT
- BEARING CAP BOLT



Steering Components

- TIE ROD PIN
- BALL HOUSING
- BALL STUD



Drivetrain Components

- HUB BOLT
- FLY WHEEL BOLT
- UNION BOLT



Brake Components

- GUIDE ROD
- TIE BAR
- SLIDE PIN
- BOOSTER PUSH ROD
- SPINDLE ASSY. (EPB)



Body & Chassis Components

- LUG WRENCH
- CAMBER BOLT
- STUD BOLT
- U BOLT



Electronic Products & Others

- COMPRESSOR BOLT
- HEX BOLT
- SCREW
- WRENCH BOLT



Tougher, Lighter and Fewer

Major Cold Forging Product

Brake	Output Rod  Usage - 1ea/veh	Brake	Tie Bar  Usage - 2ea/veh	Brake	Guide Rod  Usage - 8ea/veh	Brake	Spindle Ass'y (for EPB)  Usage - 2ea/veh
Yearly shipping Occupation	8,392,056 ea/yr (8.83%)	Yearly shipping Occupation	12,315,229 ea/yr (6.48%)	Yearly shipping Occupation	38,564,633 ea/yr (5.07%)	Yearly shipping Occupation	2,880,000 ea/yr (1.51%)
Major Customer	ZF, Mando etc	Major Customer	Hyundai Mobis, Mando, Eræ Automotiv etc	Major Customer	Hyundai Mobis, ZF, Mando Eræ Automotiv etc	Major Customer	ZF
Steering	Tie Rod (for IBJ)  Usage - 2ea/veh	Steering	Housing (for IBJ)  Usage - 2ea/veh	Steering	Ball Stud (for OBJ)  Usage - 2ea/veh	Engine	Conrod bolt  Usage - 8ea/veh
Yearly shipping Occupation	17,482,386 ea/yr (9.20%)	Yearly shipping Occupation	15,927,069 ea/yr (8.38%)	Yearly shipping Occupation	12,257,652 ea/yr (6.45%)	Yearly shipping Occupation	59,049,619 ea/yr (7.77%)
Major Customer	Hyundai Mobis, ZF, Mando, THK etc	Major Customer	Hyundai Mobis, ZF, Mando, THK etc	Major Customer	ZF, SANKEI, PT SGI Neo CTR, Leehwa etc	Major Customer	Hyundai Mobis, GMK, HMC/KMC, SYMC etc

Remark) Global Occupation is assumed to be based on 95mil.vehicle globally

Tougher, Lighter and Fewer

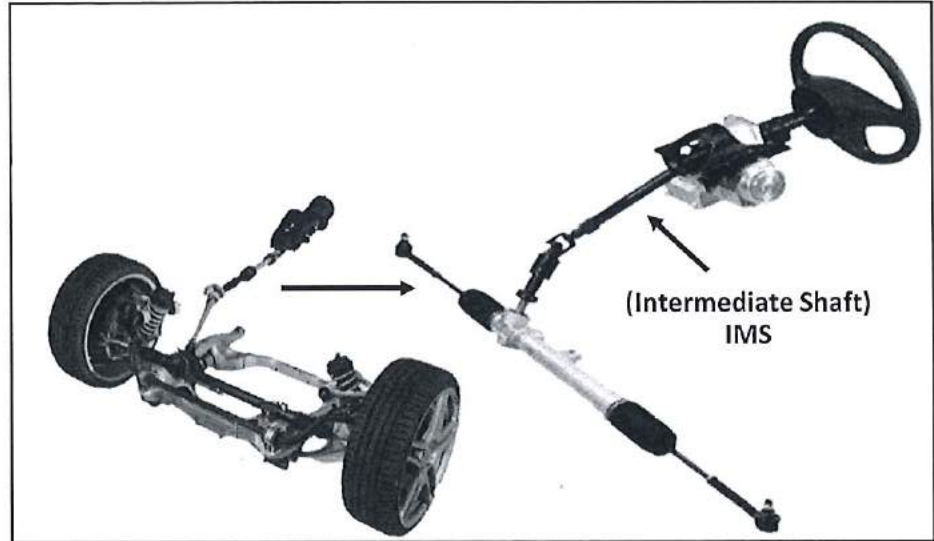
 **TAEYANG METAL INDUSTRIAL CO., LTD.**

Assembly Products

Steering Gear Box/Intermediate Shaft Assy's in India since 2012

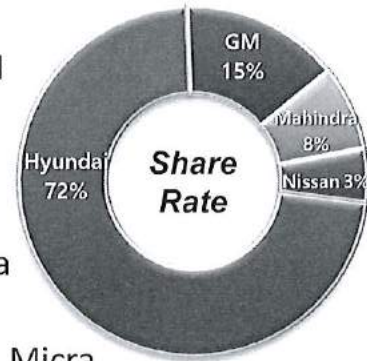
Taeyang Status

- > Capacity: 1,250k pcs
 - > Shipping: 1,150k pcs
 - > Sales Revenue : 60.2Mil USD
 - > End User: Hyundai / GM / Nissan / Mahindra
- Indirectly delivered via Mando corporation



OEM Application

- **Hyundai:** Tucson, i series, EON
- **GM:** Chevrolet Beat
- **Mahindra:** Marazzo, TUV, Reva
- **Renault/Nissan:** Kwid, Datsun, Micra



Tougher, Lighter and Fewer

 **TAEYANG METAL INDUSTRIAL CO., LTD.**

Process

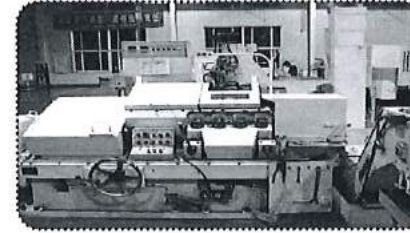
● Raw material warehousing ●



● Forging ●



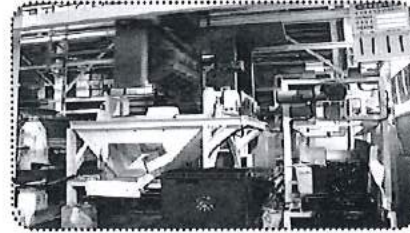
● Rolling ●



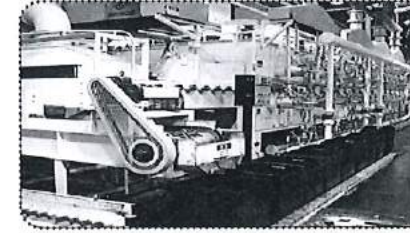
● Sorting & Packaging ●



● Surface Treatment ●



● Heat Treatment ●



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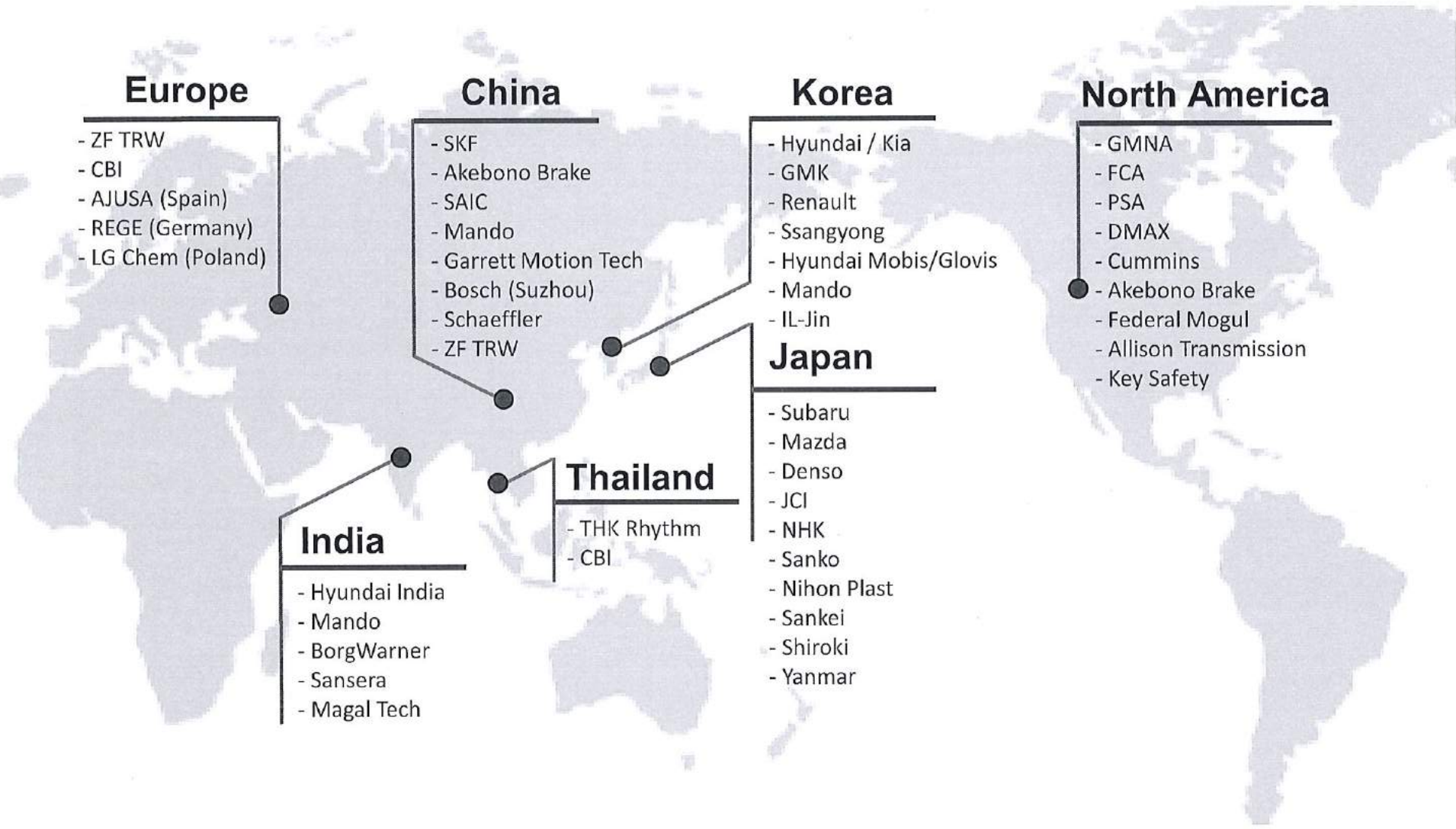
 **TAEYANG METAL INDUSTRIAL CO., LTD.**

Status of machine

Taeyang Metal plant is equipped with the state-of-the-art formers and machining facilities.
We do our best for customer satisfaction through automatic operation and productivity improvement.


Process	Equipments	Quantities
Forging/Heading	6D6B	4
	5D5B	10
	4D4B	33
	Other Formers	19
		Total : 66
Rolling	Thread rolling machine (Include assembling machine)	62
Heat treatment	Heat treatment machine	10
Surface treatment	Zinc plating lines	2
	Manganese phosphating lines	2
	Dehydrogenation line	2

Major Customer



Taeyang is under digging out potential customer as global key supplier

Tougher, Lighter and Fewer

 **TAEYANG METAL INDUSTRIAL CO., LTD.**



Overseas Plants

 **Tougher, Lighter and Fewer**

 **TAEYANG METAL INDUSTRIAL CO., LTD.**

Global Footprint




TAEYANG METAL is operating across the continents.

 USA




 Production Plant (2019)
Location: Kentucky




 USA



 Warehouse/Sales (2006)
Location: Michigan




 Mexico

 Production Plant (2018)
Location: Saltillo



 China

 Production Plant (2006)
Location: Yantai

 China

 Production Plant (2007)
Location: Zhangjiagang

 China

 Sales Office (2015)
Location: Shanghai

 India

 Production Plant (2006)
Location: Chennai

Tougher, Lighter and Fewer

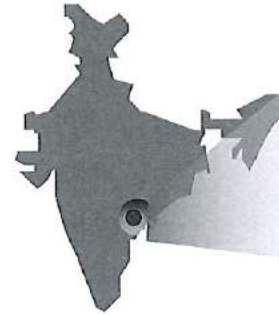
 TAEYANG METAL INDUSTRIAL CO., LTD.

Taeyang Metal Chennai Plant, INDIA

Plant Snapshot



Business Location



1. Hyundai Motor India Plant (18km)
2. Ford Motor India Plant (10km)
3. BMW India Plant (15km)
4. Nissan India Plant (2km)
5. Toyota India Plant (20km)

General information

- Established : 2006
- No. of employees : 639
- Net Sales : USD 77.4 Millions
- Key product : Guide Rod / Cylinder Head Bolt
Rack & Pinion Assy's / IMS Assy's
- Key Customer : Hyundai Motors India
Hyundai Mobis
Mando India

Major Equipment

- Former : 7
- Plating : 2
- Pinion Assy : 2
- IMS Assy : 3
- Rolling : 6
- MRP Assy : 4
- IBJ & OBJ Assy : 4
- CNC : 6

New investment (2020)

Under reviewing of investment in line with new KMC India Plant

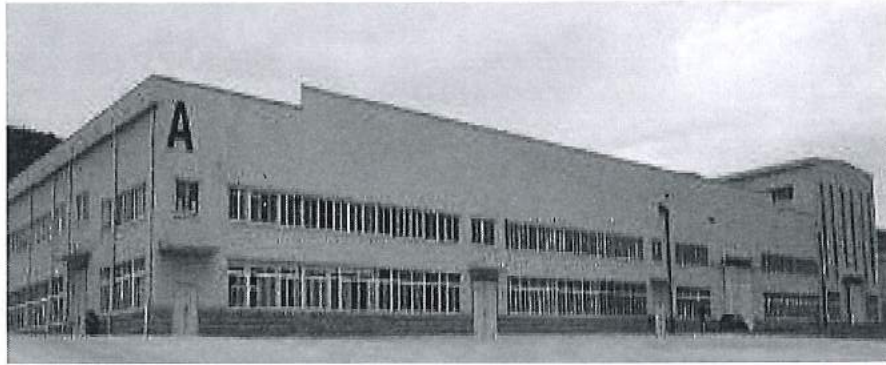
* New KMC India plant

- Location : Andhra Pradesh
- Capability : 300K veh/yr
- SOP : Dec. 2020

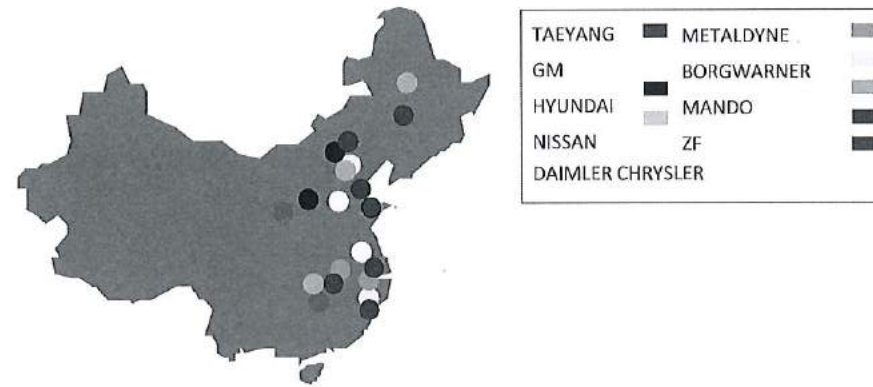
Tougher, Lighter and Fewer

 **TAEYANG METAL INDUSTRIAL CO., LTD.**

Plant Snapshot



Business Location



General information

- Established : 2006
- No. of employees : 173
- Net Sales : USD 23.1 Millions
- Key product : Guide Rod

Cylinder Head Bolt

Connecting Rod Bolt

- Key Customer : HMC/KMC

Hyundai Mobis

ZF

Mando

Major Equipment

- Former : 7
- CNC : 28
- Plating : 3 (Zinc/Geomet/Phosphate)
- Rolling : 8
- Heat treatment : 2

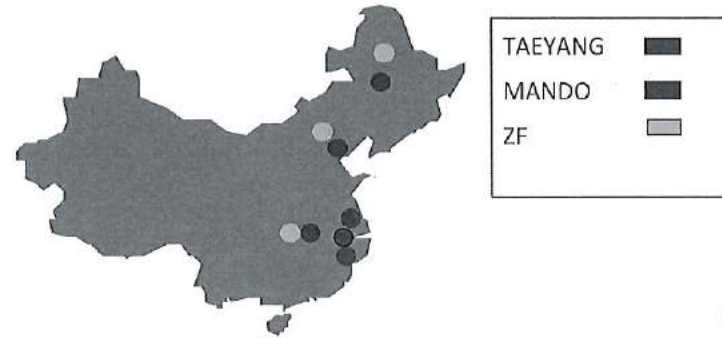
New investment (2020)

- ▶ Capacity Increase of Heat treatment
0.5 ton/hr -> 1.0 ton/hr
- ▶ Add GEOMET surface treatment

Plant Snapshot



Business Location



General information

- Established : 2007
- No. of employees : 111
- Net Sales : USD 13.2 Millions
- Key product : Inner-Ball Joint Assy
Outer Ball Joint Assy
- Key Customer : Mando (Suzhou)
Hyundai Mobis

Major Equipment

- CNC : 30
- IBJ Assy Line : 7
- Rolling : 5
- Drill : 5

New investment (2017)

- ▶ 2-OBJ Assy line for Ford Program

Taeyang Metal North America LLC (U.S.A.)

1) Company Name: TMC-NA, Taeyang Metal North America LLC

2) Location: Franklin, Kentucky, USA

3) SOP: Mar 2019

4) Business Overview

- Background : Production localization to supply Global companies in North & South America

- Major customer : GM, Chrysler, ZF, Mando, DMAX, Honeywell & etc.

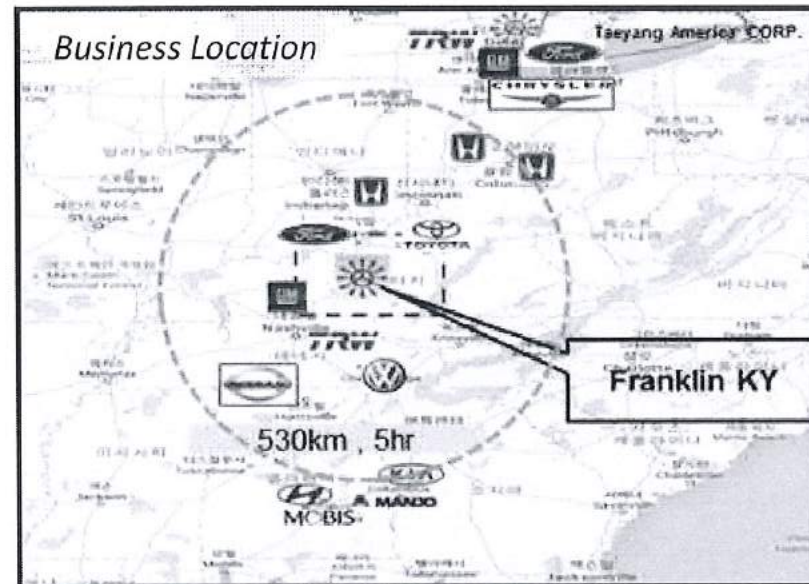
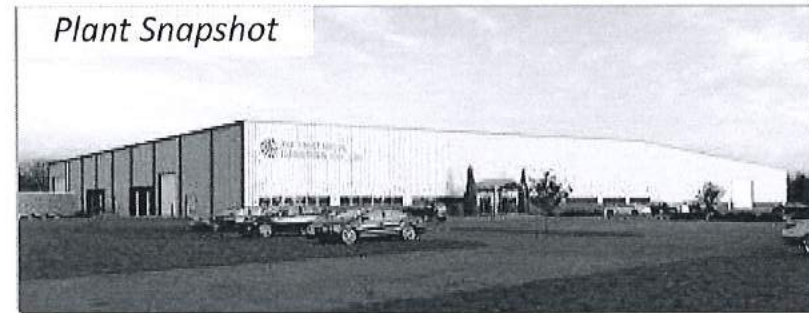
- Main products : Flange bolt M 8x33 and 113 Items

Hex bolt M12x40 and 33 Items

Other bolts 39 Items

5) Projected Annual Sales

Type	2021
Production Q'ty (Unit: Million pcs)	174
Sales (Unit: Million USD)	18.0

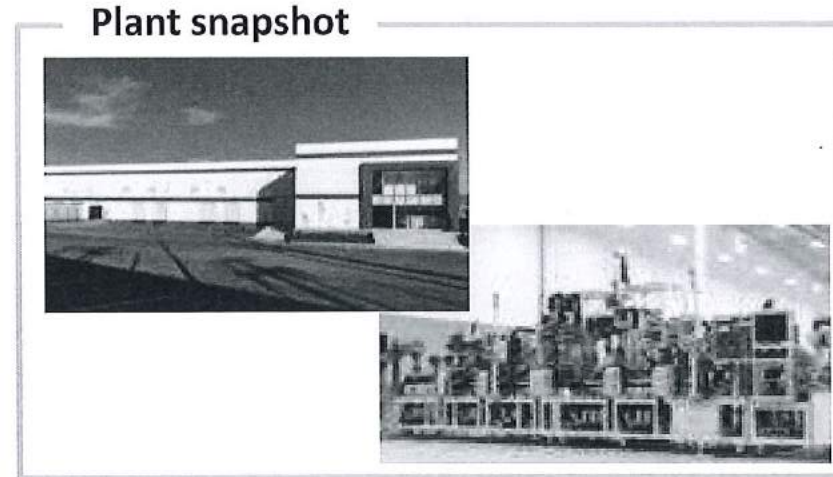


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 **TAEYANG METAL INDUSTRIAL CO., LTD.**

Primax-TMC Mexico, S. De R.L DE C.V. (Mexico)

- 1) Company Name : Primax-TMC Mexico
- 2) Location: Saltillo Ramos Arizpe, Mexico 25350
- 3) Established : Dec 2018
- 4) Business Overview
 - Major customer: Mando America, Raufoss and Bosch
 - Major product: IBJ & OBJ ASS'Y



No. of equipment	
Machining	7
Assembly	2
Testing	7
Utility	1
Total	17





R&D Capabilities

 **Tougher, Lighter and Fewer**

 **TAEYANG METAL INDUSTRIAL CO., LTD.**



TY Technical Research Center/Organization Chart

*Total Employee
68 Professionals*

Tech. Research Center
Kim, Jong Kap
+82-31-490-5530
+82-10-7313-7627 (Cell Phone)
ckkim@taeyangmetal.com

52 People

15 People

Tech. Development
Lead Engineer
Choi, Hyun Jong (EXT 5822)
+82-10-9049-0663 (Cell)
hjchoi@taeyangmetal.com

Advanced Material R&D
Lead Engineer
Lee, You Hwan (EXT 5840)
+82-10-9375-7297 (Cell)
youthwan.lee@taeyangmetal.com

Design & Development
Team Manager
Moon, Hyun Yun (EXT 5822)
+82-10-2330-1329 (Cell)
mhr135@taeyangmetal.com

Proactive Development
Team Manager
Choi, Shin Dong (EXT 5812)
+82-10-9992-5755 (Cell)
sdchoe@taeyangmetal.com

R&D

Testing & Analysis

- Product Design
- Product Development
- Dies & Tool Design
- Cost Analysis

- Certified by KOLAS (Korea Laboratory Accreditation Scheme)
- The only Private institution with professionalism for the tightening/clamping test in Korea

Founded for Research & Development Center since 1988

Tougher, Lighter and Fewer

TAEYANG METAL INDUSTRIAL CO., LTD.

◆ **ICFG** (International Cold Forging Group)

- Professional Non-Profit organization with scientists over the world
 - Bringing together experts from industry and science
 - ICFG has 107 official members around 26 countries
 - TY became a member since 2015

◆ **Sub Research Group**

- Process Simulation
- Tool life and tool quality
- Lubrication
- Advanced Precision Forming

Top Seven Leading Companies



Taeyang Metal Industrial Co., LTD



Thyssenkrupp Presta



Hirschvogel Automotive



Sunway



Yamanaka Engineering



Nichidai



Simufact Manufacturing

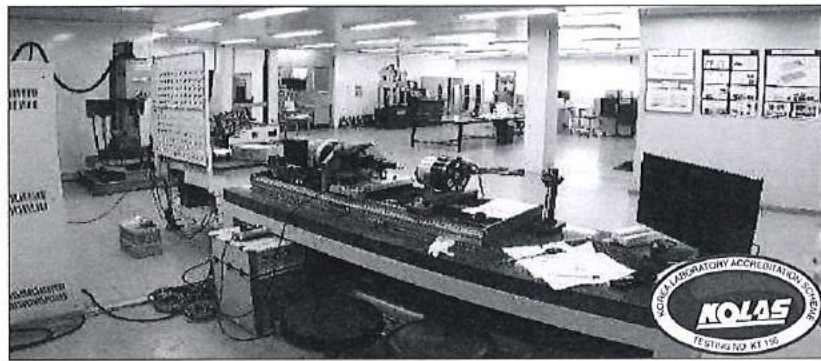
Product of TY is manufactured & developed by latest and advanced tech.

Tougher, Lighter and Fewer

 **TAEYANG METAL INDUSTRIAL CO., LTD.**

- TY's Lab. Is certified by KOLAS with its professionalism and Technology (*Korea Laboratory Accreditation Scheme*)
 - Test report of TY can effect in 69 countries based on the international agreement.
 - In case of export, credibility has been improved based on the test result from KOLAS
- TY can go under almost every types of tests and inspections on various fastener issues.

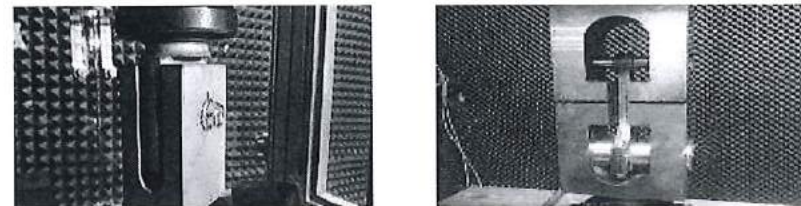
KOLAS Lab : Mechanical Test



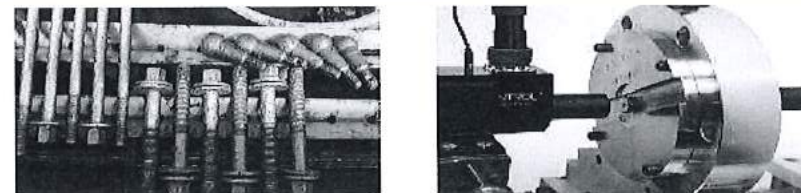
KOLAS Lab : Measurement & Calibration



Fatigue test on bolts after assembly



Corrosion test / Best Clamping Tech



Special designed test for client uses



Shear strength testing


Strain gauge bolt

Extremely long bolt

◆ Fasteners with New Materials

- Taeyang is developing Forged Titanium fasteners

- Cold forged (Ti-15-3-3-3)/ warm & hot forged (Ti-64) Ti fasteners
- Same dimension with Bolt-Con rod used for Lambda 3.3 liter GDI Eng
- 46% weight saving against steel: 12.98g / EA weight saving

Steel		Properties	Titanium alloy
	1,040	Tensile strength(MPa)	1,100
	15	Elongation (%)	20
	132	Specific strength (MPa·cm ³ /g)	244
	28.40	Weight (g)	15.42
			

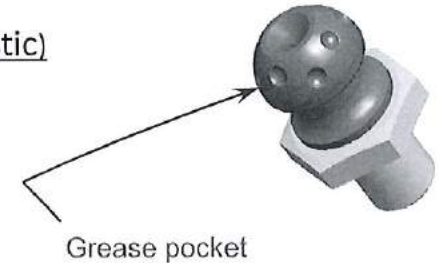
- Aluminum Alloy (Al 6XXX series)

- weight reduction
 - Increased clamping force (at warm temp)
 - Anti-Galvanic Corrosion (Al-Mg pairing)
- High Strength AL alloys over 450 MPa
 - Superior fatigue strength



- METAL HYBRID type
(B-added steel + mixed plastic)

- Improved lubrication
- Noise reduction
- Weight saving ~36%
- Cost saving ~12%



- STEEL Type SM45C (AISI 1045)

- Lubrication decline
- Noise generation



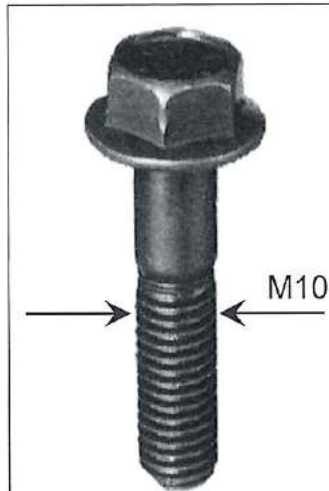
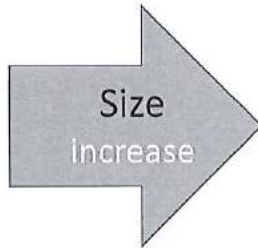
Representative Tech. & Products

◆ Needs of High Strength Bolt

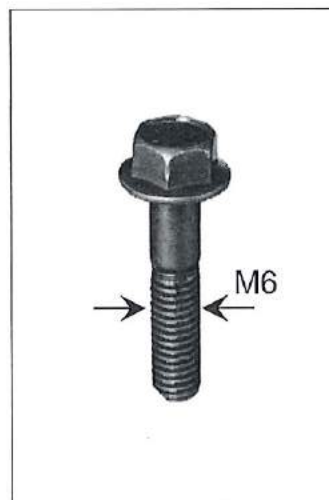
- Clamping Force is Relative to Size (cross section area) and Tensile Strength
 - Increasing bolt performance (clamping and fatigue performance) depends on tensile strength



Performance Improvement
(Clamping force increase)



- Increase of size can improve clamping force
- Inverse effect on light weight
- Counter part size increase
 - Inverse effect of load support area on counterpart
 - Engine up sizing necessary



- Size reduce but clamping force increase/ maintain
 - Positive effect on light weight
 - Counter part size reduce
 - Even can reduce number of fasteners
 - Engine down sizing is possible
- Mainly use tensile strength 10.9(over 80%)

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 **TAEYANG METAL INDUSTRIAL CO., LTD.**

☀ Representative Tech. & Products

◆ Super High Strength Bolt (Weight Reduction Effect and Application Status)

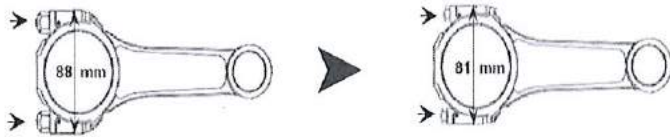
- Weight reduction effect of engine (rotations & drive range)

1. Applicate High Strength Con-rod Bolt (12.9T -> 16.9T)



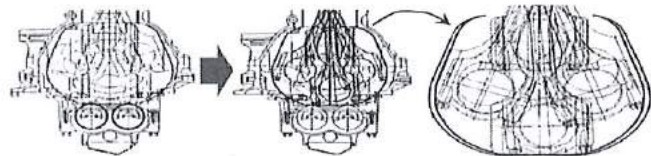
Weight reduction = 328g (41g/EA X 2EA X 4)

2. Con. Rod Minimizing (88mm -> 81mm)



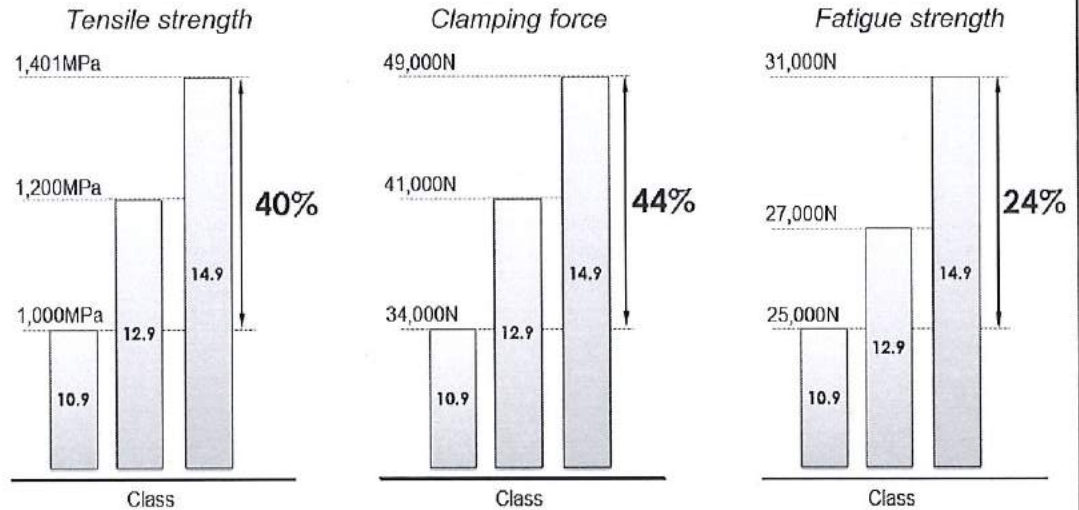
Weight reduction = 960g (240g/EA X 4EA)

3. Crack case Minimizing (320mm -> 281mm)



Total Weight reduction = 20 ~ 40kg

- Special engine bolt of TY has superior mechanical properties



- TY is a pioneer/frontier in the field of "Super High Strength Steel Fasteners"

- For a mass production, TY is manufacturing 14.9 class steel fasteners
- Developing "Ultra High Strength Steel Fasteners" up to 2,000 MPa



BOLT-CYL HEAD
M9x1.5Px130



BOLT-CON ROD
M8x1.0Px42



BOLT-WHEEL CLAMPING
1/2 -20UNFx35



BOLT-FLANGE
M10x1.25Px59

Tougher, Lighter and Fewer

☀ **TAEYANG METAL INDUSTRIAL CO., LTD.**

Advantages with Taeyang Metal

- Over 60 years' manufacturing know-how
- Production experience on various vehicles
- Very responsive organization
- Lean and flexible manufacturing processes resulting in quality products at a very competitive price

***“For value enhancing technologies,
start with Taeyang Metal”***