

SEOAM Company Introduction

2020.6



1.会社概要

┃ 一般事項

┃ 組織体制

2.生産製品

┃ Gear

- 風力発電機用
- ターボ圧縮機
- 船舶エンジン用
- 鉄道車両用
- 商業自動車用
- 減速機用
- その他多様な産業用

┃ Curvic Coupling

┃ Power Chuck

┃ Special Chuck

┃ Hydraulic Cylinder

┃ Power Vise & Electro Magnetic Chuck

3.設備紹介

┃ 生産設備

┃ 測定設備

4.特許及び認証

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1. 会社概要 - 一般事項

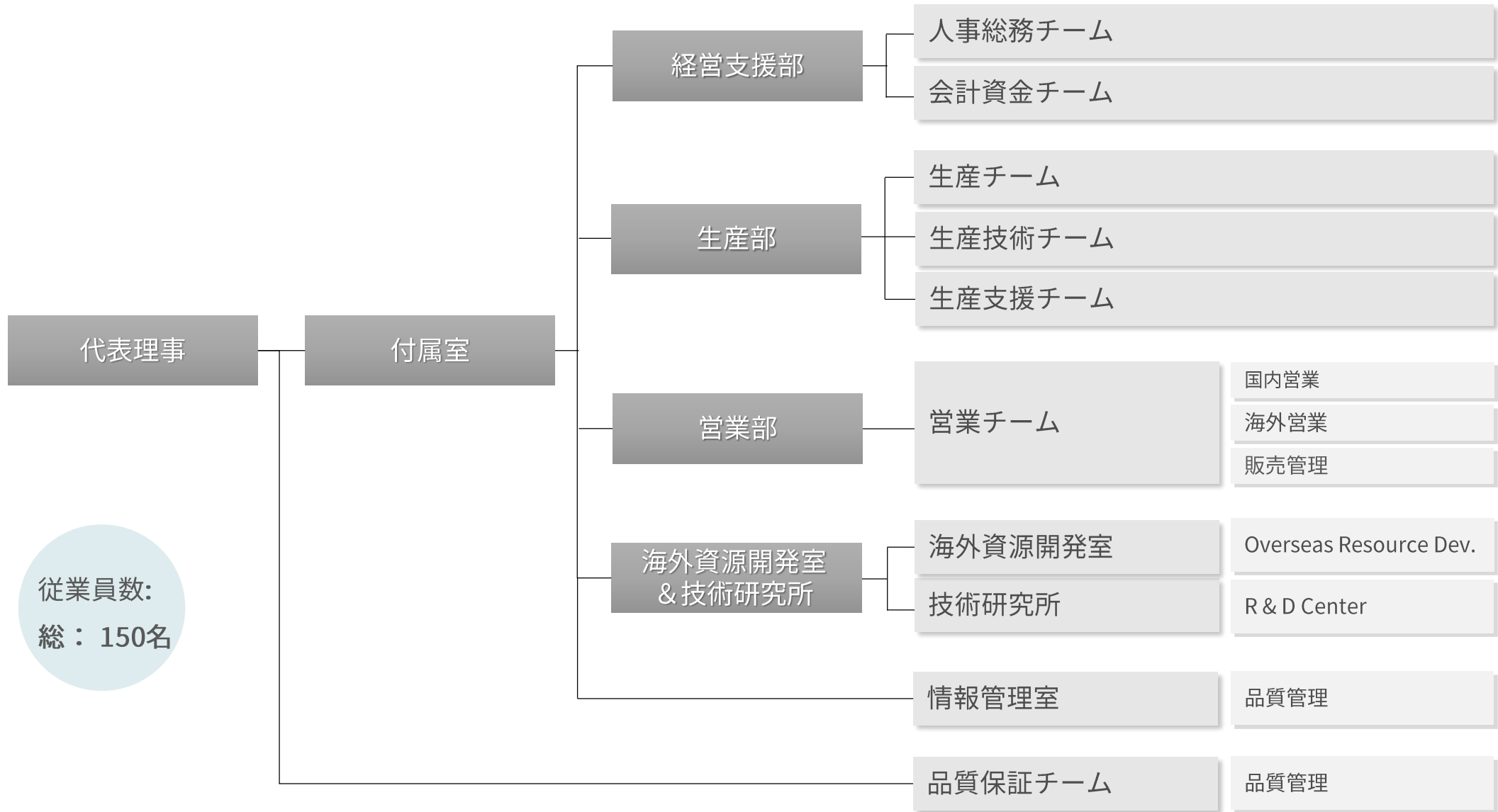
一般事項

会社名	瑞巖機械工業株式会社	代表理事	Mr. Kwon Young Ho
設立日	1978年10月01日	従業員数	150名
本社所在地	光州広域市河南産業団地8番路127-15	敷地	41,322m ²
生產品目	Helical & Spur Gear, Curvic Coupling, Chuck & Cylinder & POWER VISE他	売り上げ 資本金	KRW 425億 (Year 2018) KRW 63億

歴史

1978.02	貨泉ギヤ工業株式会社設立	2000.10	瑞巖機械工業株式會社に社名変更
1986.07	日本HOWA工業(株)技術導入契約	2000.11	パナマ運河減速機用GEAR類日本M社輸出
1988.12	CURVIC COUPLING 国産化開発	2004.01	Turbo Compressor用BullGear&Pinion 製造開始
1995.01	河南産業団地に工場新築移転	2005.08	風力発電用Pinion GEAR輸出開始
1998.09	ISO 9001 認証取得	2005.11	500万ドル 輸出塔及び大統領賞受賞
1998.11	企業付設技術研究所設立	2007.02	Jackup 減速機用GEAR H社納品開始
2000.10	独立モデルSEOAM CHUCK&CYLINDER 開発	2011.12	KOSDAQ上場

SEOAM 組織図



1. 会社概要 – 関係会社

貨泉機工株式会社



区分	内容
設立	1952年 5月 26日
事業分野	工作機械類製造業
生産製品	CNC旋盤, マシニングセンタ, 自動化設備, 専用設備
支社	アメリカ(シカゴ), ドイツ, シンガポール, インド, ベトナム
本社/工場	光州光山区長徳洞
売り上げ	2,065 億ウォン (2019年)

貨泉機械株式会社

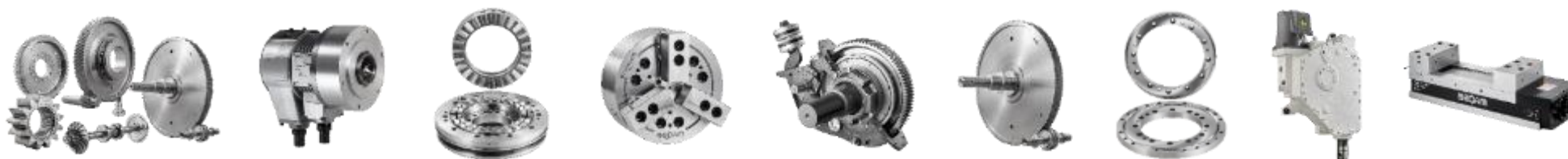


区分	内容
設立	1975年 6月 14日
事業分野	工作機械類製造業
生産製品	汎用旋盤, 汎用フライス盤, 研削機, 専用設備, 産業機械
支社	国内38箇所営業所
本社/工場	ソウル / 慶尙南道昌原
売り上げ	1,597 億ウォン (2019年)

2. 生産製品

概要

製品名	製品説明	用途	生産開始年
GEAR & GEAR BOX	産業全般にわたって使用される部品に機械の精度を維持しながら動力を伝達する中核部品	工作機械用, ロボットギヤ, 減速(中速)機用, Turbo 圧縮機用, Turbo 冷凍機用, 船舶用, 風力発電機用, 航空機用等	1978年2月
CURVIC COUPLING	超精密インデックス装置の中核部品と各種の角度分割装置に使用され、機械の精度を高める	工作機械用	1988年12月
CHUCK	CNC旋盤、汎用旋盤などに装着されて工作物クランプさせる装置	工作機械用	1977年3月
CYLINDER	CNC旋盤で回転するチャックに油圧を供給してチャックが工作物をクランプするように力を供給する装置	工作機械用	1980年3月
ATC	製品の加工順番によって必要な工具を自動的に交換する装置	マシニングセンタ	2017年1月
POWER VISE	工作台等に取り付け工作物を固定する作業工具	マシニングセンタ	2017年1月
CASE PROCESSING	カムボックス, ロータリーテーブル, 鉄道車両, 減速機等鋳物類ケース精密加工	機械ケース加工	2019年 1月



2. 生産製品 – GEAR

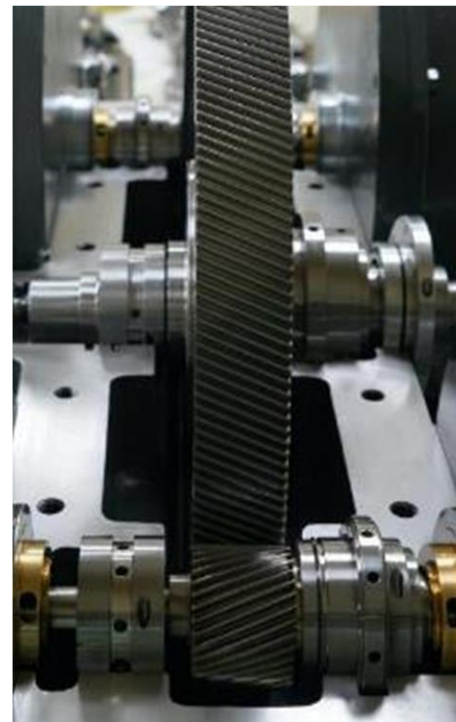
□ ターボ圧縮機用

生産製品

品名	諸元	モジュール
Bull Gear & Pinion Shaft	Max. Ø 2,800 mm	M1 ~ M35

用途

- ターボ圧縮機用



● 製品の特徴

1. 高品質 (DIN 3)
2. 高信頼
3. 低騒音, 低振動

2. 生産製品 – GEAR

□ 風力発電機用

生産製品

品名	諸元	モジュール
風力発電機用ギヤ	Ø 338 mm	M14 ~ M25

用途

- 風力発電機用ギヤ



● 製品の特徴

1. 高品質 (DIN 3)
2. 高信頼
3. 低騒音, 低振動

2. 生産製品 – GEAR

□ 鉄道車両用

生産製品

品名	諸元	モジュール
Spur & Helical Gear	Max. Ø 2,800 mm	Max. M35

用途

- 船舶引き綱用電動車両
- 総括制御電車/総括制御ディーゼル列車



● 製品の特徴

1. 高品質 (DIN 3)
2. 高信頼
3. 低騒音, 低振動
4. 多様なパターンのテスト可能
(ABS, KR, LR, DNV, GL, CCS, BV 等)

2. 生産製品 – GEAR

□ 船舶エンジン用

生産製品

品名	諸元	モジュール
Spur & Helical Gear	Max. \varnothing 2,800 mm	Max. M35

用途

- 船舶エンジン用 (低速&中速)
- 船舶減速機用



● 製品の特徴

1. 高品質 (DIN 3)
2. 高信頼
3. 低騒音, 低振動
4. 多様なパターンのテスト可能
(ABS, KR, LR, DNV, GL, CCS, BV 등)

2. 生産製品 – GEAR

□ 商業自動車用

生産製品

品名	諸元	モジュール
Input Gear for Transmission	Ø 71.5 *80	M2.96*21T
Idler Gear for Transmission	Ø 188.7 *78	M2.96*61T
Output Gear for Transmission	Ø 203.5 * 138	M2.96*67T

用途

- 低床バス用トランスミッションギヤ



● 製品の特徴

1. 高品質 (DIN 3)
2. 高信頼
3. 低騒音, 低振動

2. 生産製品 – GEAR

□ その他多様な産業用

生産製品

品名	諸元	モジュール
Spur Gear	Max. Ø 2,800	M1~M35
Helical Gear	Max. Ø 2,800	M1~M35

用途

- 航空機, ロボット, 工作機械,
- 印刷機械, 真空ブロワー, 真空ポンプ等



● 製品の特徴

1. 高品質(DIN 3, AGMA 13)
2. 高信頼
3. 低騒音, 低振動

2. 生産製品 – GEAR

□ 減速機用

生産製品

品名	諸元	モジュール
Gear for Reducer	Max. Ø 2,800	M1~M35

用途

- 減速機ギヤ
- 減速機ギヤボックス



● 製品の特徴

1. 高品質 (DIN 3)
2. 高信頼
3. 低騒音, 低振動
4. 減速機専門生産

2. 生産製品 – REDUCER

Reducer

品名	諸元	モジュール
Gear Reducer	Custom Made	Custom Made



AGITATOR駆動用
<立型REDUCER>



PRESS SYM-R/O駆動用
<中空REDUCER>



MAIN PRESS用
<横型REDUCER>



PULPER用
<立型, 横型REDUCER>



2. 生産製品 – CURVIC COUPLING

Curvic Coupling

品名	諸元
2 PCC	10T~360T
3 PCC	24T~360T



2-Piece Curvic Coupling

- 製品の特徴
- 1. 自動に中心復帰
- 2. 構造が簡単
- 3. 一般的な分割装置に使用が容易
- 4. 互換性が優秀
- 5. 特別仕様は注文生産が可能



3-Piece Curvic Coupling

- 製品の特徴
- 1. 自動に中心復帰
- 2. 回転テーブルが浮上しない
- 3. 重いワークの使用可能
- 4. チップ及び異物質の侵入を防止
- 5. 特別仕様は注文生産が可能

2. 生産製品 – POWER CHUCK

Power Chuck

品名	SIZE
Big Bore Power Chuck	5" ~ 32"
Great Bore Power Chuck	6" ~ 21"
Closed Center Power Chuck	4" ~ 80"
Scroll Chuck	3" ~ 20"
Independent Chuck	8" ~ 80"
Special Chuck	Custom Made



● 製品の特徴

1. 高い把握力
2. 高速化実現
3. 軽量化実現
4. 耐久性確保

2. 生産製品 – HYDRAULIC CYLINDER

Hydraulic Cylinder

品名	SIZE
Big Bore Hydraulic Cylinder	5" ~ 32"
Great Bore Hydraulic Cylinder	6" ~ 21"
Closed Center Hydraulic Cylinder	5" ~ 21"



● 製品の特徴

1. 完全性確保
2. メンテナンス点検容易
3. 油漏防止
4. 同級最大推力

2. 生產製品 – SPECIAL CHUCK

Special Chuck

品名	WORK
Wedge Bar chuck	Crank Shaft
Spindle & Collet Chuck	Shaft
Finger & Pusher Chuck	Calliper Housing
Collet & Finger Fixture	Al - Wheel
Wedge Jaw & Finger Chuck	Al - Wheel
Finger Chuck	Knurckle
Draw & Dawn Chuck	Piston
Collet & Sub Clamp Chuck	Press Work
Eccentric Collet Chuck	Compressor Crank Shaft
Finger Chuck	Pinion Gear
Collet & Finger Chuck	Diff Drive Gear Hard Trunning
Finger Chuck	Calliper Housing
Pusher Chuck	Calliper Housing
Wedge Bar & Lever Chuck	Calliper Housing
Wedge Bar Chuck	Copper Pipe Forming
Mandrel Chuck	Long Housing
Rubber Collet & Finger Chuck	Convertor Ass'y



2. 生産製品 – POWER VISE & ELETRO MAGNETIC CHUCK

Power Vise



生産製品

Model	Jaw Width	Jaw Height	Max. Opening	Total Height	Bed Height	Total Width	Total Length	MAX. Clamping Force	N.W
SPM - 125	125	50	230	135	85	130	520	3500kgf	38kg
SPM - 160	159	60	300	160	100	161	625	6000kgf	60kg
SPL - 200	199	70	405	180	110	202	745	6000kgf	103kg

2. 生產製品 – POWER VISE & ELETRO MAGNETIC CHUCK

Electro Magnetic Chuck



生產製品

Model	Size [mm]	Pole Size [mm]	Number of Pole [EA]	Power Supply	Weight
SPEC-546	400 X 600 X 55	50 X 50	48	AC220V	120 Kgs
SPEC-558	500 X 800 X 55	50 X 50	70	AC220V	170 Kgs
SPEC-5610	600 X 1000 X 55	50 X 50	126	AC220V	280 Kgs

2. 生産製品 - CASE PROCESSING

Case

品名	規格
鋳物ケース	Custom made

Application

鋳物ケース精密加工

- 工作機械用部品
- 産業用設備及び自動化ケース



3. 設備紹介

生産設備

設備名	諸元	メーカー	台数
CNC Gear Grinding M/C	Ø 2,500	HOFLER	1
CNC Gear Grinding M/C	Ø 2,800	GLEASON-PFAUTER	1
CNC Gear Grinding M/C	Ø 1,200	GLEASON-PFAUTER	2
CNC Gear Grinding M/C	Ø 360~ Ø 1,000	REISHAUER	3
CNC Gear Grinding M/C	Ø 400	GLEASON	2
CNC Vertical Grinding M/C	Ø 1200	TAIYO KOKI	6
Internal Grinding M/C	Ø 600	OKAMOTO	7
Rotary Surface Grinding M/C	Ø 830	OKAMOTO, Etc.	6



3. 設備紹介

生産設備

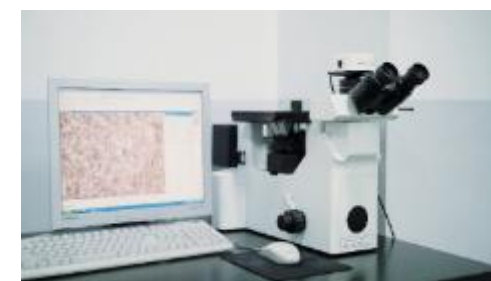
設備名	諸元	メーカー	台数
Gear Hobbing M/C	Ø 1,600	PFAUTER	18
Gear Shaper	Ø 800	LORENZ	6
Gear Shaving M/C	Ø 300	HIRAOKA	2
Slotting M/C	Ø 1,200	YAMAGE	1
Broaching M/C	10 TON	NACHI	1
Curvic Coupling Grinding M/C	10T~360T	GLEASON	6
CNC Jig Borer (Case Processing)	700*450	YASDA	1
Precision Center (Case Processing)	500*500	YASDA	1



3. 設備紹介

測定設備

設備名	諸元	メーカー	数量
CNC Gear Measuring Center	Ø 2,500	KLINGELNBERG	1
CNC Gear Measuring Center	Ø 600	KLINGELNBERG	1
CNC Gear Measuring Center	Ø 800	TOKYO TECHNICAL	1
Gear Measuring Center	Ø 1,200	KLINGELNBERG	1
CMM	1200x1200x1000	SHEFFIELD	1
CMM	1200x2200x1000	HEXAGON	1
Precision Balancing Test Machine	Ø 1,200	NAGAHAMA SCHENCK	1
Metallurgical Stereo Microscope	MAX.1000X	OLYMPUS	1
Surface Roughness Tester	Perthometer M1	MAHR	2
Roughness Measuring Tool	EMD-3200	FEDERAL FORMASCAN	1
Autocollimator	Min.0.5 arc second	NIKON	1
Micro Height Gauge	0-600mm	TESA	4



4. 特許及び認証書

品質認証(ISO,KS)



ヨーロッパ CE
(チャック)



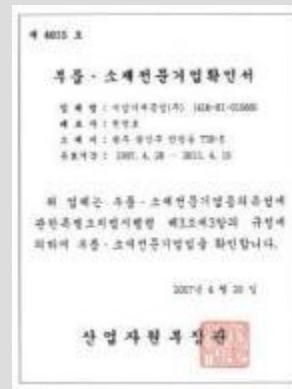
ヨーロッパ CE
(油圧シリンダ)



シングル PPM
(カービックカップリング)



部品素材専門企業



特許 (10件)



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SEOAM MACHINERY INDUSTRY CO., LTD.

5. 顧客リスト

IHI

 **MITSUBISHI**
HEAVY INDUSTRIES, LTD.

 Hanwha Power Systems

Nabtesco

 **HYUNDAI**
HEAVY INDUSTRIES

HYUNDAI
Rotem

 **MITSUBISHI HEAVY INDUSTRIES**
COMPRESSOR CORPORATION

Howa



SēAH Engineering

Mazak

CITIZEN
Micro HumanTech

 **LOKUMA**

Innovation in Motion
TSUBAKI

Atlas Copco

DOOSAN

TAKAMAZ


DESIGNERS

 **MAKINO**

 **Sumitomo**
Heavy Industries, Ltd.

 **HARDINGE**

HYUNDAI
DYMOS

HYUNDAI
WIA



 **Nakamura-Tome Precision Industry**

BOSHI

TAKISAWA

BFW
Bharat Fritz Werner

 **Biglia**

SEOAM
SEOAM MACHINERY INDUSTRY CO., LTD.

THANK YOU





Precision Tube & Pipe (Air Cylinder, Automobile, Semiconductor, Electronic, Medical, Precise Shaft & Roller)
Instrument Tube
Power Plant (Atomic, Geothermal, Hydroelectric, Thermal, Chemical etc.)
Aerospace Industries, Defense Industries, Shipbuilding Industries
Heat Exchanger & Boiler (Oil & Gas, Refinery etc.), Condenser

We, Pungsung Precision Tube Co., Ltd., have specialized in **cold drawing precision steel tubes** and supplied high-quality products that achieve customer's requirements by over 30 years experience and know-how.

The strength of Pungsung is to provide **the best quality products with flexible delivery** because we hold proper inventories to cope with unexpected situations. Also, Pungsung's finances and credit are very stable, thus we are qualified as a long term partner for your project.

Pungsung's products are applied for various industries such as instrumentation devices, oil & gas, medical device, automotive part, chromatography, etc.

PUNGSUNG PRECISION TUBE

81, Yongdeok-ro 302 Beon-gil, Hallim-myeon, Gimhae-si, Gyeongnam, Korea of Republic, 50852

Tel. : +82-55-338-8245
 Fax. : +82-55-338-8248
 Email : pungsung@pungsung.com
 Web : www.pungsung.com

General Information

President	Jung, Im-geun
Establishment	January 1 st , 1990
Factory 1	Production for Precision Tube (Cold drawing for straight tubes) 81, Yongdeok-ro 302 beon-gil, Hallim-myeon, Gimhae-si, Gyeongnam
Factory 2	Production for Small Diameter Tube (Weld and Redrawn / Coil tubes) 62, Yongdeok-ro 302 beon-gil, Hallim-myeon, Gimhae-si, Gyeongnam
Factory 3	Production for Cold Rolling 288-52, Anha-ro, Saengnim-myeon, Gimhae-si, Gyeongnam
Employee	29
Assets	US\$ 8,120,778 (Exchange rate : 1 USD = 1,150 KRW)
Capital	US\$ 1,712,465 (Exchange rate : 1 USD = 1,150 KRW)
Raw Material Procurement	Korea, Japan, Europe, Etc.
Website	www.pungsung.com
Official Email	pungsung@pungsung.com



Head Office & Factory 1



Factory 2



Factory 3

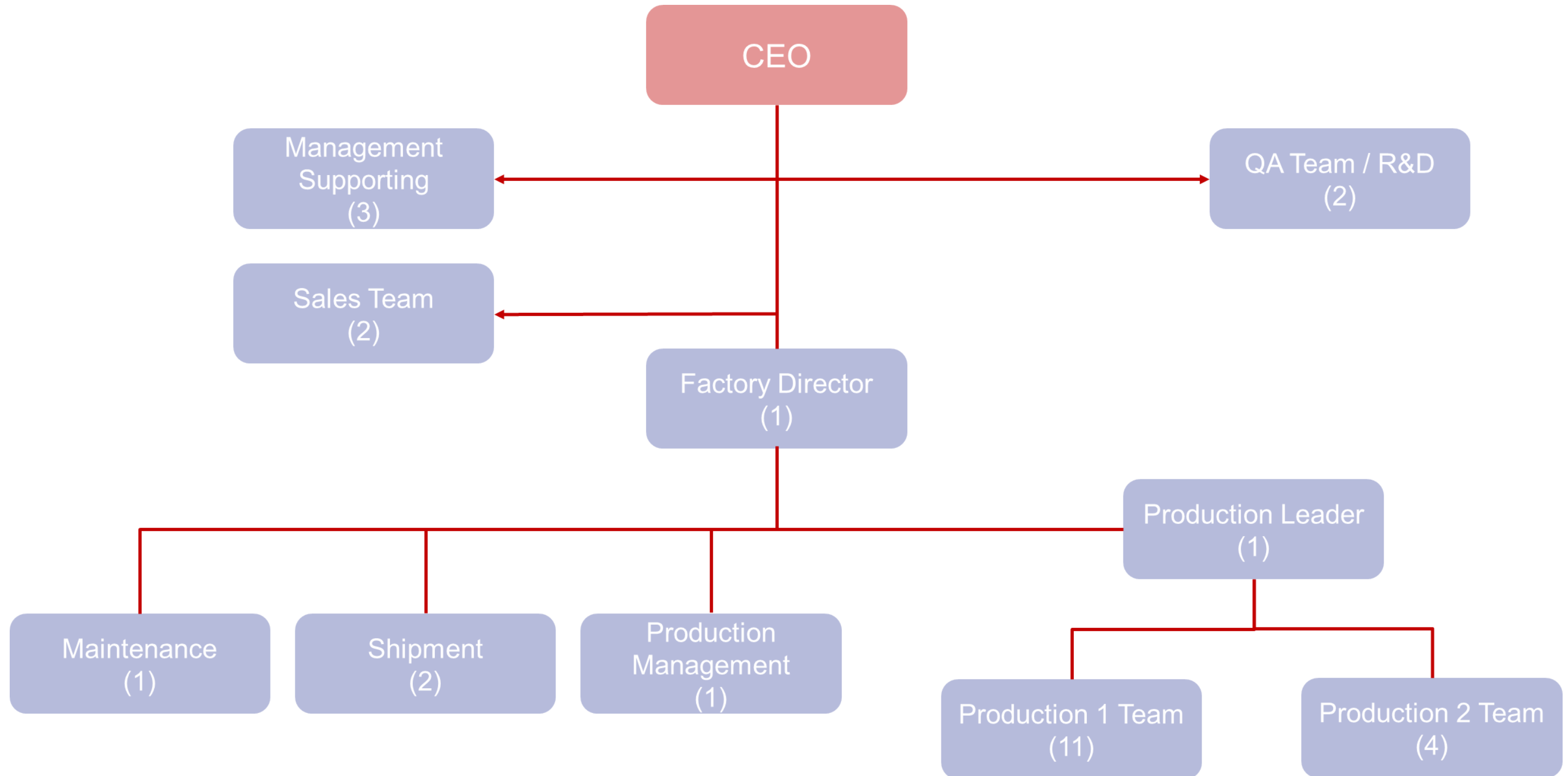
History & Awards

COMPANY HISTROY	
Aug. 2018	Assembled Pilger Mill Machine (Cold-Rolling) 50vmr
Jul. 2018	Patent Application for Multiple-Layered Tubes
Dec. 2017	Constructed Production Line for Weld and Redrawn Tubes
2012~2017	Registered as a vendor : - Korea Hydro & Nuclear Power Co., Ltd. (KHNP) - Doosan Heavy Industries & Instruction - Daewoo Engineering & Construction - S-Oil Corporation - Daewoo Shipbuilding & Marine Engineering (DSME) - Hyundai Engineering & Construction - Samsung C&T Corporation - Vallourec Heat Exchanger Tubes, Inc. (U.S.A) - Korea Delphi Automotive Systems Corporation
Apr. 2011	Acquired KEPIC qualification (Cert. for Nuclear Plant Material Quality System)
Sep. 2009	Establish R&D department
Oct. 2008	Acquired ISO 14001 Certification
Feb. 2006	Acquired ISO 9001 Certification
May. 2006	Patent Application for Equipment in Drawing Dies (2-kinds)
Jan. 1990	Foundation

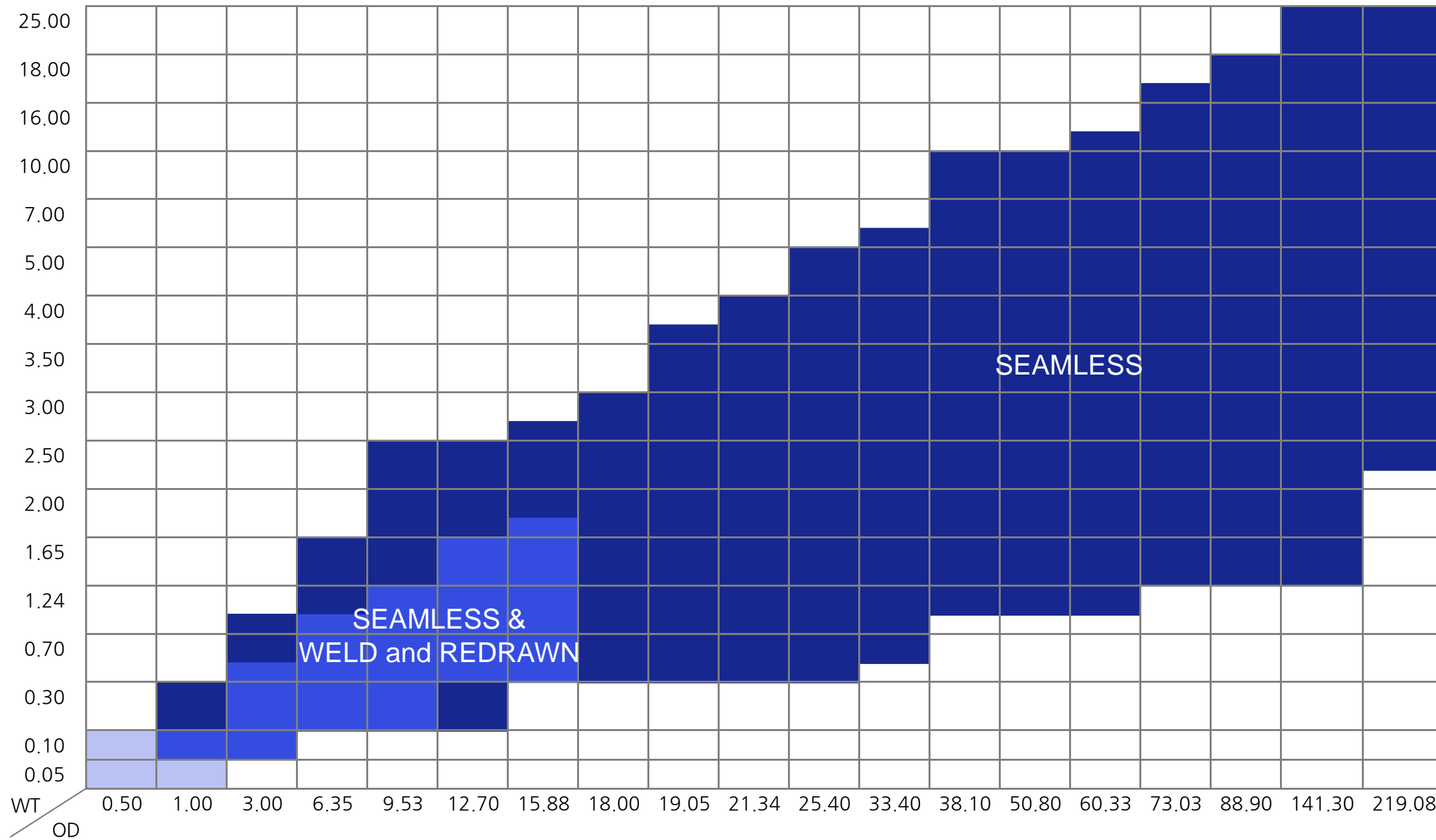
COMPANY AWARDS	
Dec. 2019	The tower of \$3-Million Export - Ministry of Trade and Industry
Jul. 2011	Management Award - Gyeongnam Technopark Director
Jun. 2006	Academic Excellence Award - Gyeongnam Small and Medium Business Administration
May. 2006	Good Small Business Award - Ministry of Knowledge Economy
Mar. 2006	Good Businessmen Award - Ministry of Knowledge Economy



Organization Chart



Production Scope



SEAMLESS	
OD (mm)	1.00 ~ 219.08
WT (mm)	0.10 ~ 25.40
Tolerance	up to 0.015 mm
Surface Finish	up to 0.2μm Ra

WELD and REDRAWN	
OD (mm)	0.50 ~ 15.88
WT (mm)	0.05 ~ 2.11
Tolerance	up to 0.0015 mm
Surface Finish	up to 0.2μm Ra

- * Non-standard size tubes can be produced following customers' requirements.
- * We can manufacture straight lengths up to 30m and coil tubing up to 100kg per coil.



► Size

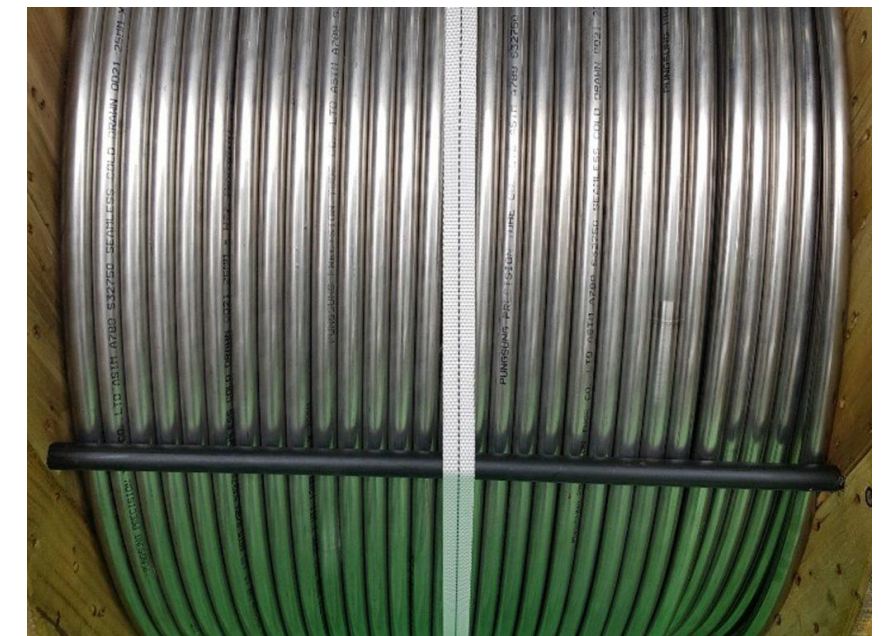
Size (inch)	Size (mm)	Coil Length
1/4 x 0.035	6.0 x 1.0	Max. 100kg
1/4 x 0.049	6.0 x 1.2	
1/4 x 0.065	6.0 x 1.5	
3/8 x 0.035	8.0 x 1.0	
3/8 x 0.049	8.0 x 1.2	
3/8 x 0.065	8.0 x 1.5	
1/2 x 0.035	10.0 x 1.0	
1/2 x 0.049	10.0 x 1.2	
1/2 x 0.065	10.0 x 1.5	
1/2 x 0.083	12.0 x 0.8	
5/8 x 0.035	12.0 x 1.0	
5/8 x 0.049	12.0 x 1.5	
5/8 x 0.065	15.0 x 1.0	
5/8 x 0.083	18.0 x 1.0	

► Type

Seamless coil tubing
Welded and Redrawn coil tubing
Orbital-welded coil tubing

* Non-standard size tubes can be produced following customers' requirements.

► Products



▲ S32750 Orbital-Welded Coil Tubing for umbilical manufacturing

► Materials

Stainless Steel	TP304/L , TP316/L , 310S, 321/H, 347/H, 410S, 420J2, etc.
Duplex	S31803, S32205, S32750
Special Steel	904L, Monel, Hastelloy C276, N06625, N06600, N08825, N08800, etc.
Titanium	TI Gr.2

* Many other grades tubing can be manufactured. Please contact us for more details.

► Production Capacity

Factory 1 & 3	50 tons per month
Factory 2	10 tons per month

► Specifications

- ASTM : A213, A269, A312, A789, B163, B790, B167, B668, etc.
- ASME : SA213, SA269, SA312, SA789, SB163, SB167, SB668, etc.
- NACE : MR 0175, etc.



Production Facilities

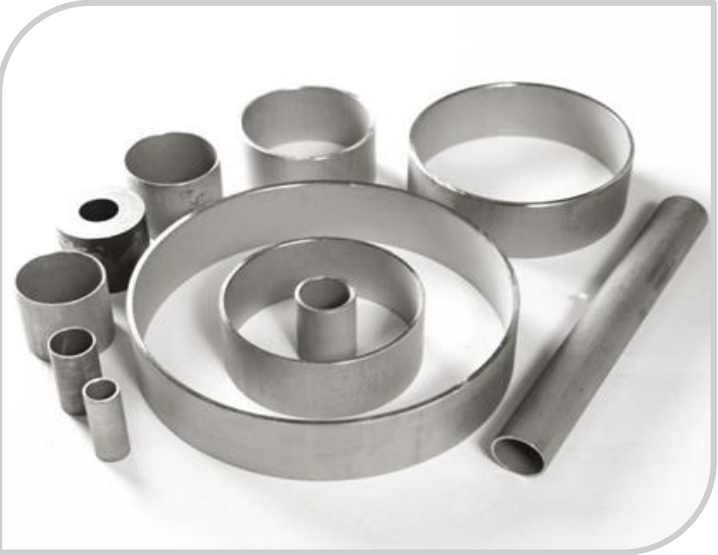
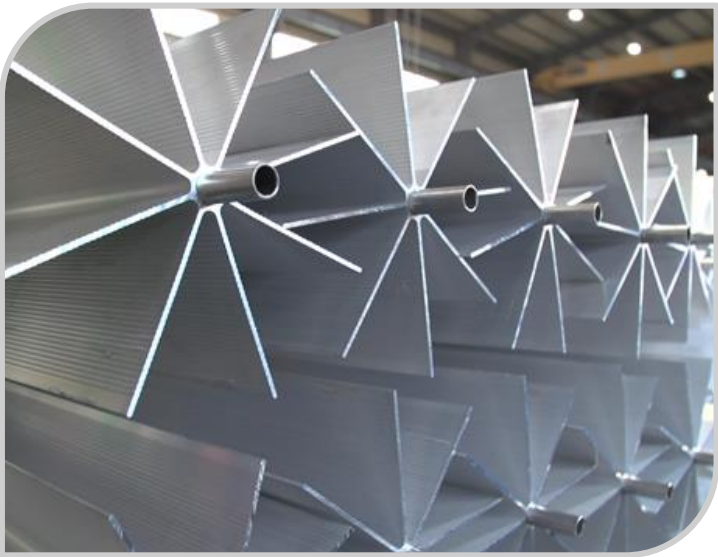
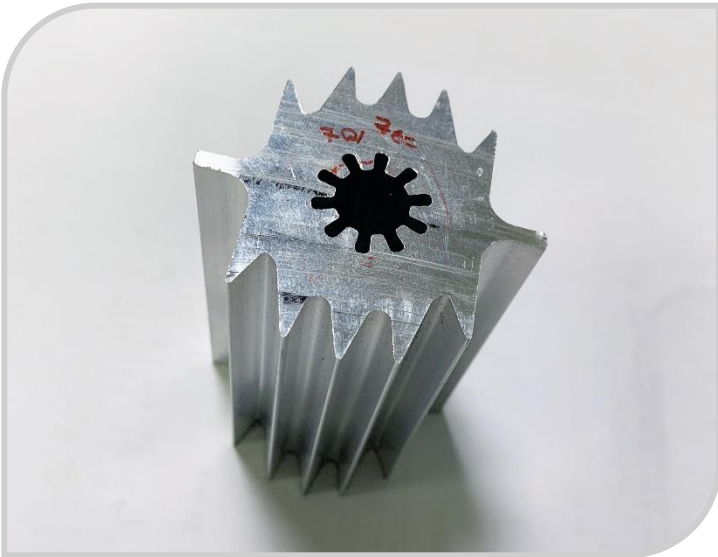
Pilger mills	Eddy current testing (NDT)
Draw benches	Hydrostatic testing
Forming and welding mills	Polishing
Bright annealing furnaces	High pressure air compressor
Straightening machines	Screw Compressor

Testing Facilities

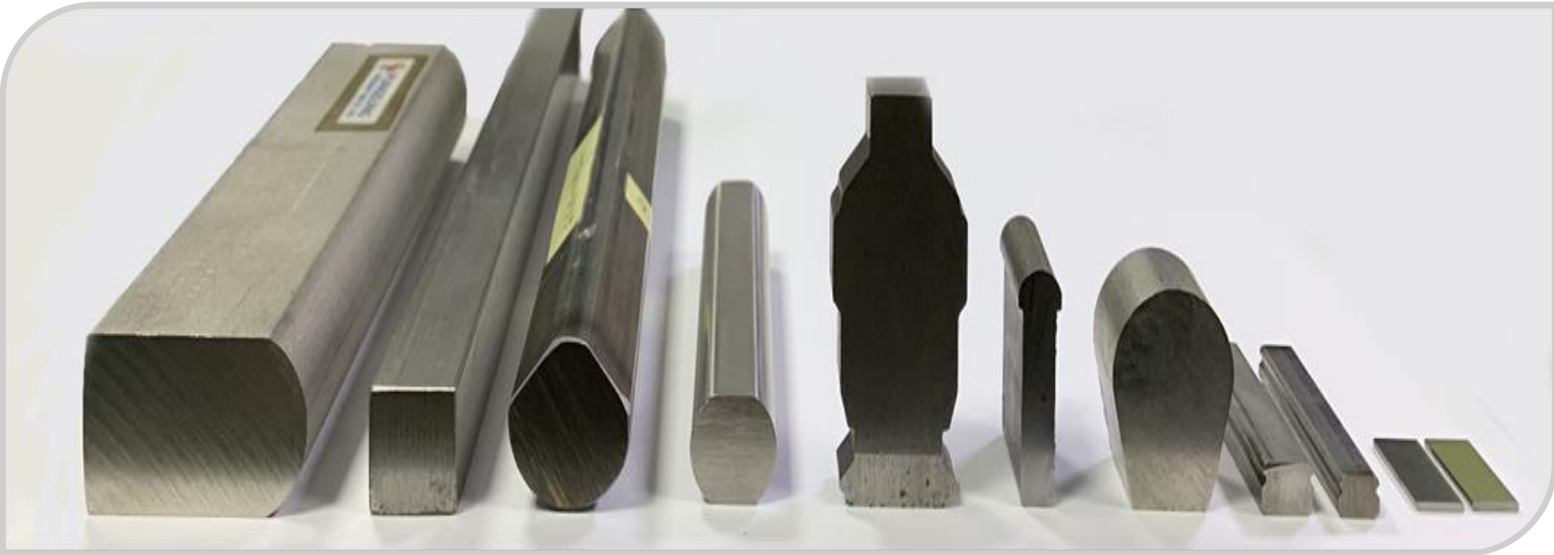
Portable analysis appliance (PMI)	Surface roughness tester
Spectroscope analysis	Hole Tester (Inside-Diameter Measuring Tool)
Material property laboratory analysis	Cylinder gauge
Rockwell Hardness	Caliper
Thickness gauge of Ultrasonic	Micro meter



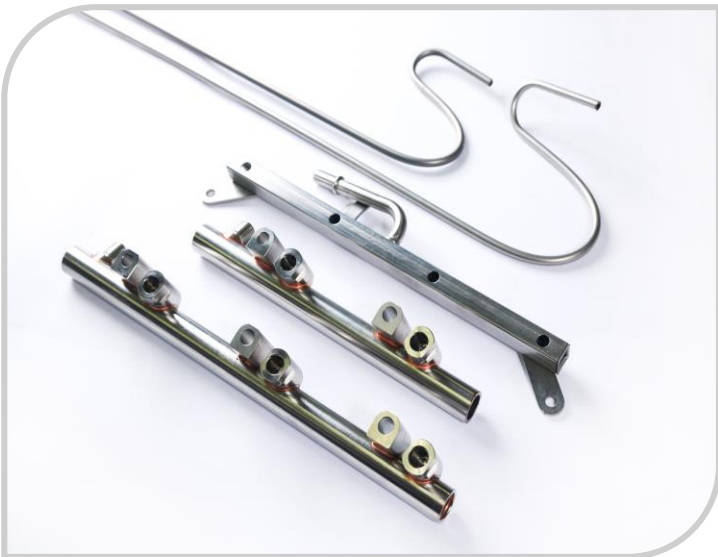
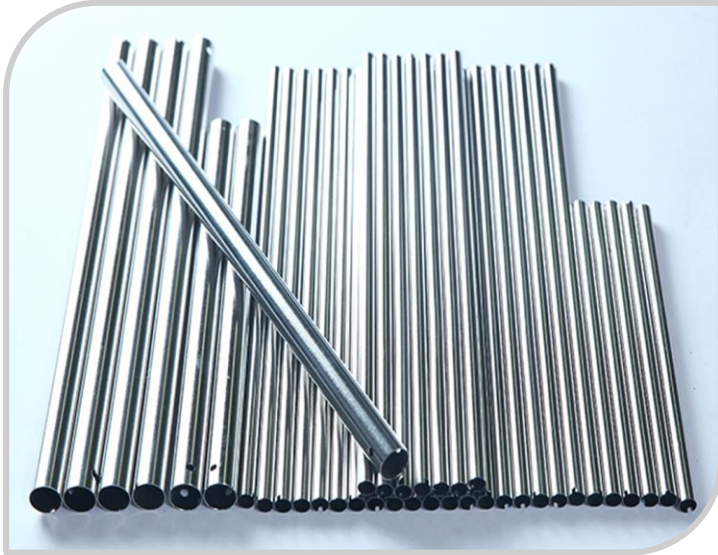
Products



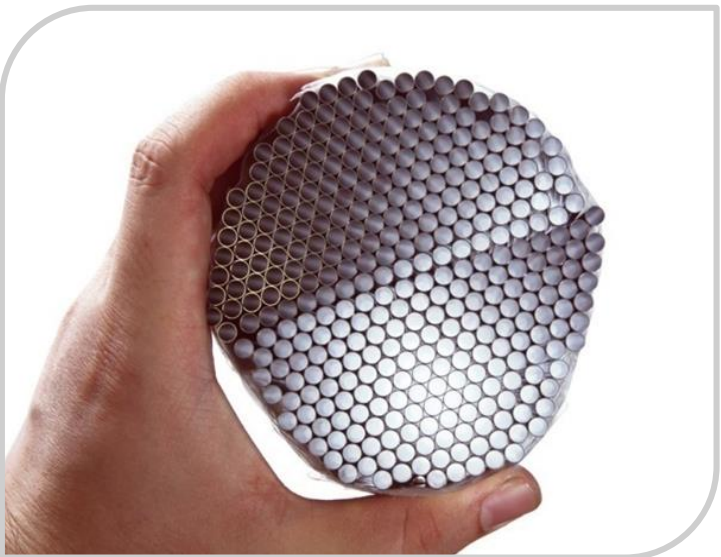
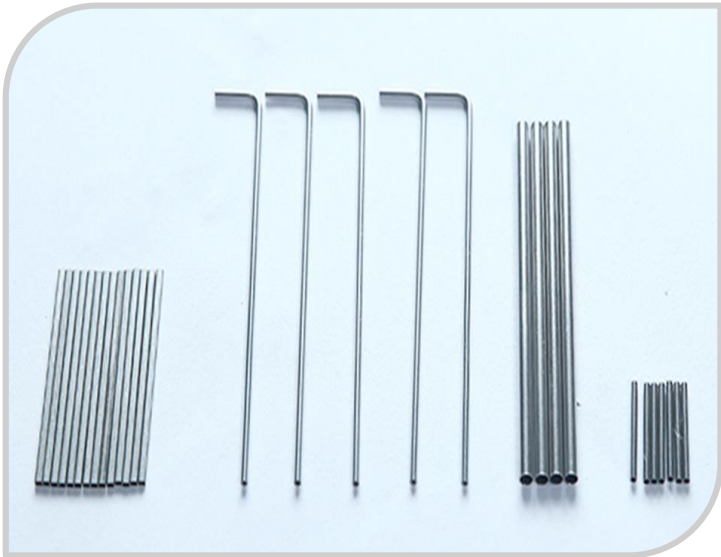
Products



Products - Automotive



Products – Medical & Electronic



Reference List

End User	Project / Application (Site)	Material	OD (mm)	WT (mm)	Length (mm)	Date
Nuclear Power Plant						
Hyundai E&C	Barakah Nuclear Power Plant (UAE)	304 / 316 / Monel 400	9.53 / 12.7 / 19.05	1.65	6096	2016 ~ 2019
Doosan Heavy Industries	Shin-kori Nuclear P/P #5,6 (Korea)	304 / 316 / Monel 400	9.53 / 12.7 / 19.05	1.65	6096	2019
Samsung C&T	Saeul Nuclear P/P #3,4 (Korea)	Monel 400 SMLS	9.53	1.65	6096	2021
Power Plant / Oil Refinery						
GS E&C	Ruwais Refinery Expansion – PKG2	317L SMLS	12	1	6000	2017
Kobe Steel. Ltd.	Khneo Chemical PPY PJT (Japan)	304 SMLS	57.15 / 25.4 / 19.05	3.00 / 2.00	2000 ~ 4000	2018.10
S-OIL	Oil Refinery Plant (Korea)	C44300 SMLS	15.87	1.25	3300	2015
Tubes Inc.	Heat Exchanger (USA)	304/L SMLS	19.05	0.71	9373	2020.11
ENAR PETROLEUM REFINING FACILITY	N/A (Pakistan)	A179 / 304 SMLS (L-fin)	19.05 / 31.75	2.11	5000 / 6000	2019 / 2021
Godrej & Boyce Mfg.	N/A (India)	304 SMLS	26.67	1.65	15,415 ~ 16,495	2017 ~ 2018
Lavan Oil Refinery	RLS-67163-LA (Iran)	C68700 / TI GR.2	28.00 / 19.05	0.70 / 0.51	5100 / 6060	2018.04

Reference List

End User	Project / Application (Site)	Material	OD (mm)	WT (mm)	Length (mm)	Date
Precision Tube for Heat Exchanger						
Kumho Mitsui Chemicals	MDI 60,000 MTPA EXPANSION (Korea)	Hastelloy C-276 (N10276) SMLS	50.8	3.00	3240	2018.08
N***	Fin Tube Maker (USA) (OD Tol' - ± 0.065 / WT Tol' - ± 0.09)	439 / 316L / S31803	25.4 / 19.05	2.11 / 1.83	2,896 ~ 12,369	2016 ~ 2017
W***	Fin Tube Maker (Portugal) (OD Tol' - ± 0.075 / WT Tol' - ± 0.13)	304L SMLS	19.05	2.16 / 1.83	10,500 ~ 11,725	2018
High-Pressure Tube						
H***	High-Pressure Tube for Water Jet (Max.100,000 psi)	316L SMLS	6.35 / 9.53 / 14.29	1.78 ~ 4.75	6,000 ~ 14,000	2011 ~
Shipbuilding						
DSME	Jang Bo Go III Submarine Parts Battery Hook Rail (Indonesia)	316Ti Bar	Sectional Shaped Extrusion Bars			2016
DSME	Sohn Wonyil-class Submarine Parts Batter Hook Rail	316Ti Bar	Sectional Shaped Extrusion Bars			2015
Medical Part (Micro Precision Tube)						
-	Needle Tube	420J2 SMLS 304 WELD-REDRAWN	4.55 / 4.00 / 3.35	0.25	117 ~ 280	2017 ~ Present
-	Surgical Instrument	304 WELD-REDRAWN	3.50 / 4.05 / 4.50	0.325 / 0.4	2100	2018 ~ Present

Reference List

End User	Project / Application (Site)	Material	OD (mm)	WT (mm)	Length (mm)	Date
Automotive Parts (High-Pressure Precision Tube)						
Delphi Korea	GDI Fuel Line (Korea)	304L SMLS	20	2.20	312 / 277	2014 ~ 2018
UNIWELL	for Automatic Transmission (Korea)	304 WELD-REDRAWN	13.70 / 16.80 / 14.00	0.60 / 0.70	3000	2014 ~ 2018
-	for Engine Line (Korea)	304 WELD	8	1	673 ~ 809	2019 ~ Present
Aerospace						
Hanwha Corp.	Korean Space Launching Vehicle – II	316L SMLS	66.00 / 188.00	1.00 / 2.00	2000 ~ 4000	2016 ~ 2018
Military Industry						
Republic of Korea Army	K-1 Tank (Korea)	321 SMLS (MIL-T-8808)	9.53 / 25.40	0.89 / 2.11	6000	2019.05
Republic of Korea Naval Logistics Command (NLC)	(Korea)	C12200 / C70600 SMLS 304 WELD	9.53 / 21.70 / 26.67 27.20 ~ 48.60	0.89 / 2.90 2.90~3.70	6000	2019.05
Black Construction Corp.	Diego Garcia Project (USA)	A53 Gr.B	FBE. PU Coated pipe, spools and fittings (Flange, Elbow, Tee etc.) from 1" to 20"			2017.04
Submarine Cable						
(Russia)	Umbilical Tubes for Submarine Cable	S32750 SMLS	15.16 / 21.25 / 42.10	1.23 / 1.10 / 2.00	200 ~ 250M Roll	2019.08

Reference List

End User	Project / Application (Site)	Material	OD (mm)	WT (mm)	Length (mm)	Date
Others						
Seojin Instech		N06600 (Inconel 600)	6.5	0.50	168	
Hyundai Oilbank	Ferrule - Inner Tube	N08825 (Incoloy 825)	19.05	0.50	150	2014.04
Korea Gas Corp. (한국가스공사)	1000M3 Jeju Air Vaporizer PJT	304L SMLS	19.05	1.65	12100	2018.12
HYOSUNG	HSVCI PP4 PJT	304L SMLS	25.4	1.65	11640	2019.01
Daewoo E & C	Jor f Lasfa PJT	316L SMLS	12	2.00	6000	2012 ~ 2017
Doosan Heavy Industries	Mong Duong PJT / MARAFIQ PJT GECHO-ONE (T/G)	316L / 304L	9.53 / 12.7 / 50.8	1.65 / 2.41	6000	
GT Solar (USA)		N06600 (Inconel 600)	38.1	1.65	6000	2016
Doosan Heavy Industries	Goseong Hai Thermal P/P #1, 2	316L SMLS	6.35 / 9.53 / 12.7 / 25.4	1.24 / 1.65	6000	2020.12
Samsung Heavy Industries	Coral Mozambique FLNG	316L SMLS	12.7 / 19.05 / 25.4 / 31.75 / 38.1	1.65 / 2.11 / 3.05 / 3.4	6000	2020.11
	Iksan Incineration Plant	310S / 304L SMLS	38.1 / 45.0	5.00 / 3.20	4000	2021.03
LS NIKKO		321H SMLS	62	2.172	9145	2022.01

KEPIC

 전력산업기술기준
Korea Electric Power Industry Code

QUALITY SYSTEM CERTIFICATE

Certificate Number : DN-473

Company Name : Pungsung Precision Tube Co., LTD.
Address : 81, Youngdeok-ro 302beon-gil, Hallim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

This is to certify that the above company has established and maintained proper quality system program for the scope shown below in accordance with the applicable requirements of Korea Electric Power Industry Code.

Applicable Code : KEPIC-MN, SN
Certification Date : April 20, 2020
Expiration Date : April 19, 2023

Scope :
- Material organization manufacturing tubular products and supplying ferrous & nonferrous material except for welding & repair welding



대한전기협회장
Chairman of Korea Electric Association



PED

Certificate

**Quality-Assurance System
for Manufacturer of Materials
acc. to Directive 2014/68/EU**

Certificate no.: 01 202 ROK/Q-19 0100

Name and address of the manufacturer:	Pungsung Precision Tube Co., Ltd. 81, Yongdeok-ro 302 beon-gil, Hallim-myeon, Gimhae-si, Gyeongsangnam-do, Korea
<p>Herewith we certify that the material manufacturer has established and applies a Quality Management System. The system was audited according to the European Directive 2014/68/EU, Annex I, Par. 4.3, with regard to the materials as listed in the scope of approval.</p>	
Tested acc. to Directive 2014/68/EU:	QM System acc. to EN 764-5, article 4.2
Audit report no.:	ROK/Q-19 0100
Area of validity:	Manufacturing of Seamless Steel Tubes & Pipes, see annex to certificate
Manufacturing plant:	Pungsung Precision Tube Co., Ltd. 81, Yongdeok-ro 302 beon-gil, Hallim-myeon, Gimhae-si, Gyeongsangnam-do, Korea
Valid until:	May 14, 2022

Cologne, May 15, 2019



Dipl.-Ing. (FH) Roman Alexander Meyers



TÜV Rheinland Industrie Service GmbH
Notifizierte Stelle für Druckgeräte, Kennnummer: 0035
Am Grauen Stein, D-51105 Köln

E-009-D-Rev22

www.tiv.com  **TÜV Rheinland®**
Procololy Right.

ISO 9001 : 2015



Quality Certified

Certificate of Registration

Pungsung Precision Tube Co., Ltd.

81, Yongdeok-ro 302beon-gil, Hallim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

operates a

Quality Management System

which complies with the requirements of:

ISO 9001:2015

The registration covers the production of tubes, pipes and bars from stainless steel, carbon steel, titanium alloy and copper alloy.

Original Certification: 17 July 2018
Certification Decision/Reissue Date: 13 July 2021

Registration No: SK3898-QC-EC-SC
Expiry Date: 15 July 2024


 Craig J Bates
 President
 TQCS International(Group) Pty Ltd
For the TQCSI Certification Approval Panel


 Sean Bates
 Accreditation Manager
 TQCS International Pty Ltd

This certificate verifies the original certificate issued and is valid as long as it is displayed as an electronic copy at www.tqcsi.com and surveillance audits are satisfactorily completed. TQCS International Pty Ltd (ABN 59 065 953 924) of Quality House, 117A Tapleys Hill Road, Hendon, SA, 5014, Australia issues certification subject to the TQCSI Rules of Certification.







ISO 14001 : 2015



Environmentally Certified

Certificate of Registration

Pungsung Precision Tube Co., Ltd.

81, Yongdeok-ro 302beon-gil, Hallim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

operates an

Environmental Management System

which complies with the requirements of:

ISO 14001:2015

The registration covers the production of tubes, pipes and bars from stainless steel, carbon steel, titanium alloy and copper alloy.

Original Certification: 17 July 2018
Certification Decision/Reissue Date: 13 July 2021

Registration No: SK3898-QC-EC-SC
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 Craig J Bates
 President
 TQCS International(Group) Pty Ltd
For the TQCSI Certification Approval Panel


 Sean Bates
 Accreditation Manager
 TQCS International Pty Ltd

This certificate verifies the original certificate issued and is valid as long as it is displayed as an electronic copy at www.tqcsi.com and surveillance audits are satisfactorily completed. TQCS International Pty Ltd (ABN 59 065 953 924) of Quality House, 117A Tapleys Hill Road, Hendon, SA, 5014, Australia issues certification subject to the TQCSI Rules of Certification.







Certificate

ISO 45001 : 2015

Safety Certified

Certificate of Registration

Pungsung Precision Tube Co., Ltd.
81, Yongdeok-ro 302beon-gil, Hallim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

operates a
Safety Management System
which complies with the requirements of:
ISO 45001:2018

The registration covers the production of tubes, pipes and bars from stainless steel, carbon steel, titanium alloy and copper alloy.

Original Certification: 17 July 2018 Registration No: SK3898-QC-EC-SC
Certification Decision/Reissue Date: 13 July 2021 Expiry Date: 15 July 2024

Craig J Bates, President, TQCS International (Group) Pty Ltd
Sean Bates, Accreditation Manager, TQCS International Pty Ltd

This certificate verifies the original certificate issued and is valid as long as it is displayed as an electronic copy at www.tqcsi.com and surveillance audits are satisfactorily completed. TQCS International Pty Ltd (ABN 59 065 953 924) of Quality House, 117A Tapleys Hill Road, Hendon, SA, 5014, Australia issues certification subject to the TQCSI Rules of Certification.

ISO 13485 : 2016

G-CERTI Certificate

hereby certifies that

Pungsung Precision Tube Co., Ltd.
81, Yongdeok-ro 302beon-gil, Hallim-myeon, Gimhae-si, Gyeongsangnam-do, Korea

has been audited and certified as meeting the requirements of Scope of registration

ISO 13485:2016

Medical Devices - Quality Management Systems

Manufacture of Medical Tube

Certificate No : GIS-4424-MD
Valid Period : 09 Jul 2020 - 08 Jul 2023
Initial Date : 09 Jul 2020 Issue Date : 09 Jul 2020
Expiry Date : 08 Jul 2023

Signed for and on behalf of GCERTI
President LK Cho

IATF 16949 : 2016

CERTIFICATE No. TS/148/20

IT IS HEREBY CERTIFIED THAT THE QUALITY MANAGEMENT SYSTEM OF
PUNGSUNG PRECISION TUBE CO., LTD.
㈜풍성정밀관
81, YONGDEOK-RO 302BEON-GIL, HALLIM-MYEON, GIMHAE-SI, GYEONGSANGNAM-DO, 50852, REPUBLIC OF KOREA.
경상남도 김해시 만림면 용덕로 302 번길 81

IN THE FOLLOWING OPERATIONAL UNITS
81, YONGDEOK-RO 302BEON-GIL, HALLIM-MYEON, GIMHAE-SI, GYEONGSANGNAM-DO, 50852, REPUBLIC OF KOREA.
경상남도 김해시 만림면 용덕로 302 번길 81

IS IN COMPLIANCE WITH THE STANDARD AND THE SCHEME REQUIREMENTS
IATF 16949:2016
FOR THE FOLLOWING FIELD(S) OF ACTIVITIES
MANUFACTURING OF STAINLESS AND NON-FERROUS PRODUCTS
스테인레스 및 비철금속 제품의 제조

Having been assessed in accordance with "IATF 16949 certification scheme rules - 5th Edition November 2016"
The validity of this certificate is dependent on an annual/monthly audit and on a complete review, every three years, of the management system

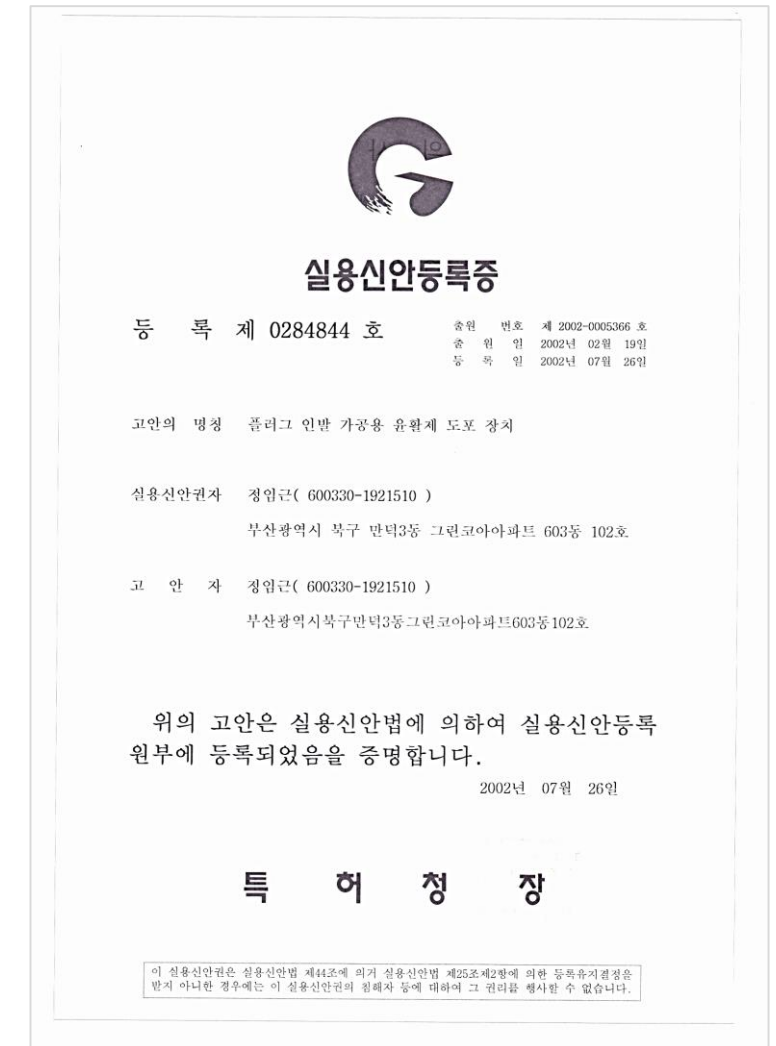
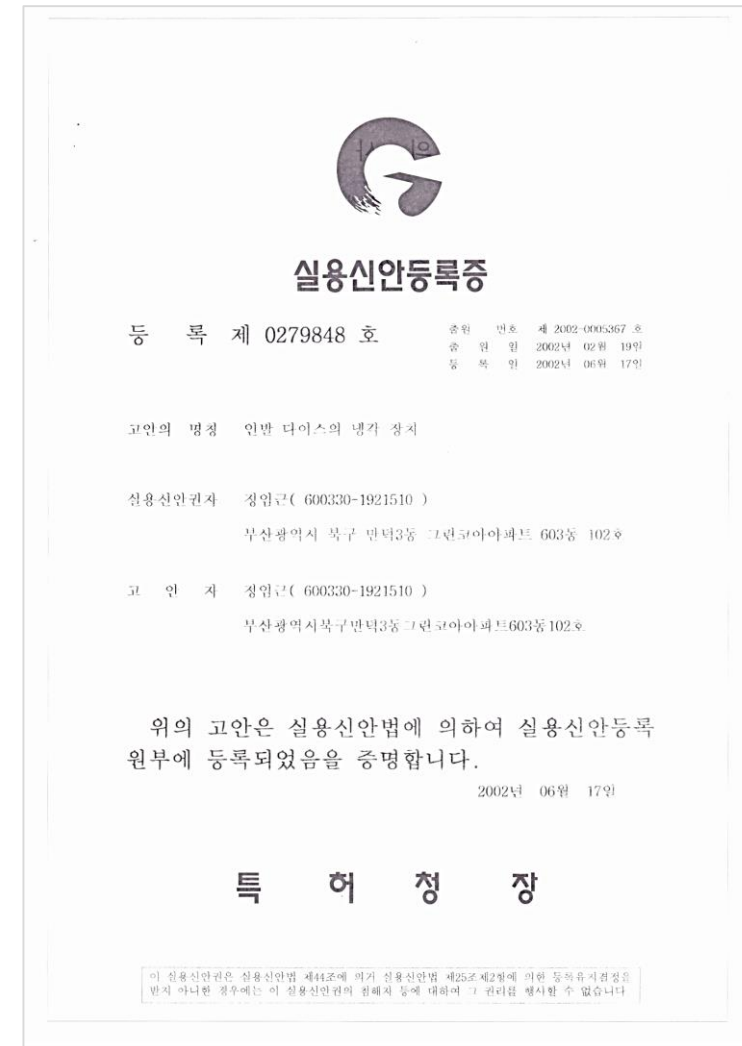
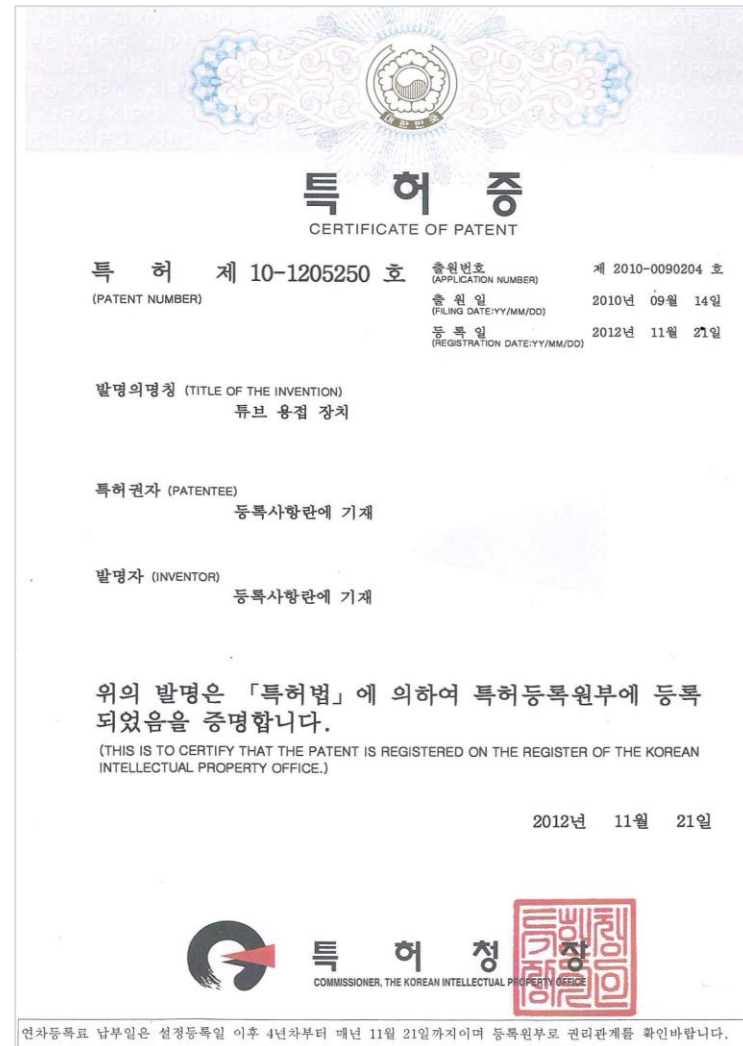
Issue date: 30.10.2020 Expiry date: 29.10.2023

Andrea Aloisio, Certification Compliance and Technical Support, Director
RINA Services S.p.A., Via Corsica 12 - 16128 Genova - Italy

NOT APPLICABLE REQUIREMENTS: 8.3 - PRODUCT DESIGN

For information concerning validity of the certificate, you can visit the site www.rina.org

IATF Certificate 0374669



Certificate of Registration

유자격공급자 등록증
Certificate of Registration

등록번호 (Certificate No.): 202110260
상호 (Company Name): 주식회사 풍성정밀관
공장주소 (Factory Location): 경상남도 김해시 용덕로302번길 81 (한림면) (주)풍성정밀관
대표자 (Chief Executive officer): 정임근

[상기 업체는 우리 회사의 공급자관리지침에 따라 심사한 결과 예비품목 [기재 공급업체로 등록되었음을 증명합니다.]

This is to certify that according to KHNP's qualification procedure, this company has been registered on KHNP's Approved Spare Parts Vendor List for the below items.

NO	품목코드 Item Code	품명 Item Description	품질등급 Quality Class	유효기간 with CGID
1	101(Q)	PIPE	Q	2021.11.12~2026.11.11
2	105(Q)	TUBING	Q	2021.11.12~2026.11.11

2021.11.12

한국수력원자력(주)
KOREA HYDRO & NUCLEAR POWER CO., LTD.

KHNP vendor

발달번호: 081-1982-0131-1321

정비직격업체 인증서

등록번호: 남동-0742
업체명: (주)풍성정밀관
대표자명: 정임근
사업자등록: 615-81-82875
소재지: 경남 김해시 한림면 용덕로 302번길81
유효기간: 자격품목 하단에 표시

NO	자격 품목	자격 범위	자격분야
1	복수기 본체, Tube [2015.05.04~2018.05.03]	Not Limited	제작/반출업
2	복수기용 열교환기 [2015.05.04~2018.05.03]	국유제품	제작/반출업
3	압력송기용 Pipe & Fitting [2015.05.04~2018.05.03]	Not Limited	제작/반출업

위 업체를 발전설비 정비직격업체로 인정함

2016.06.28

한국남동발전(주)
KOREA SOUTH-EAST POWER CO.

Korea South-East Power vendor

공급업체 등록증

1. 등록번호 : 15859
2. 업체명 : (주)풍성정밀관
(사업자등록번호 : 615-81-82875)
3. 소재지 : 경상남도 김해시 용덕로302번길 81
4. 유효기간 : 2017/01/21 ~ 2020/01/20
5. 승인분야 : · 품목 : Stainless Steel Seamless Tube, Copper Alloy Seamless Tube
· 범위 : Heat Exchanger Tube, Boiler Tube

상기 업체는 우리회사의 관리절차에 따라 심사한 결과 승인분야에 대한 공급자로 등록 되었음을 증명합니다.

2017년 01월 21일

S-OIL 주식회사
구매부문 담당 상무

S-Oil vendor

인증 018호

김해형 강소기업 인증서

· 기업명 : (주)풍성정밀관
· 대표자 : 정임근
· 주소 : 김해시 한림면 용덕로 302번길 81

위 기업을 탁월한 기술과 경영혁신으로 김해 미래산업을 선도할 『김해형 강소기업』으로 인증합니다.

2019년 6월 17일

김해시장 허성

Small-Giants Company

제 R161101-02040 호

경영혁신형 중소기업(Main-Biz) 확인서

업체명 : (주)풍성정밀관
대표자명 : 정임근
주소 : 경남 김해시 한림면 용덕로302번길 81
유효기간 : 2019.10.31 ~ 2022.10.30

위 업체는 경영혁신형 중소기업 육성사업에 의해 선정된 경영혁신형 중소기업(Main-Biz)임을 확인합니다.

2019년 10월 04일

중소벤처기업부장관인

Main-Biz Cert

제 R111101-01589 호

기술혁신형 중소기업(Inno-Biz) 확인서

업체명 : 주식회사 풍성정밀관
대표자 : 정임근
주소 : 경남 김해시 한림면 용덕로302번길 81
등급 : AA
유효기간 : 2020. 9. 9 ~ 2023. 9. 8

위 업체는 기술혁신형 중소기업 육성사업에 의해 선정된 기술혁신형 중소기업(Inno-Biz)임을 확인합니다.

2020년 8월 7일

중소벤처기업부장관인

Inno-Biz Cert

FCT (주) 화인세라텍

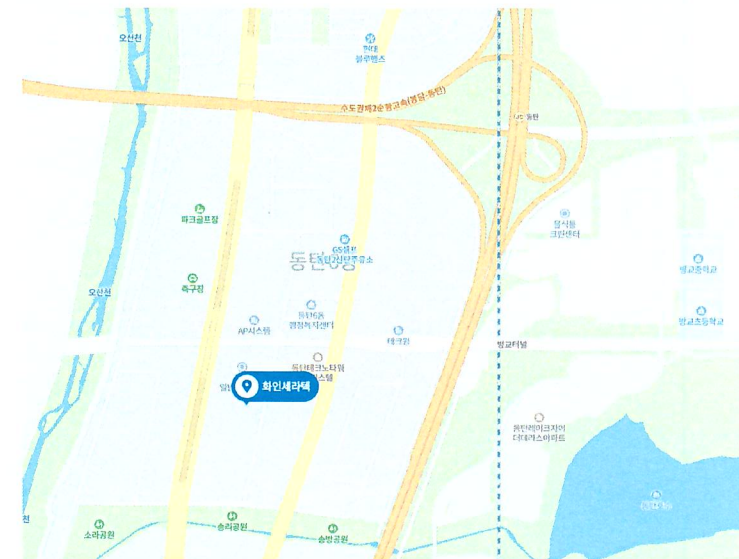


Company Overview

FCT is a component material company that develops and produces Multi Layer Ceramic (MLC) substrates for Probe Card based on ceramic material technology.

1. Head Office

Location	15-23, Dongtansandan 6-gil, Hwaseong-si, Gyeonggi-do, KOREA
Head Office	FST (FINE SEMITECH CORP) -Head Quarter -KOSDAQ Listed Company (0368)

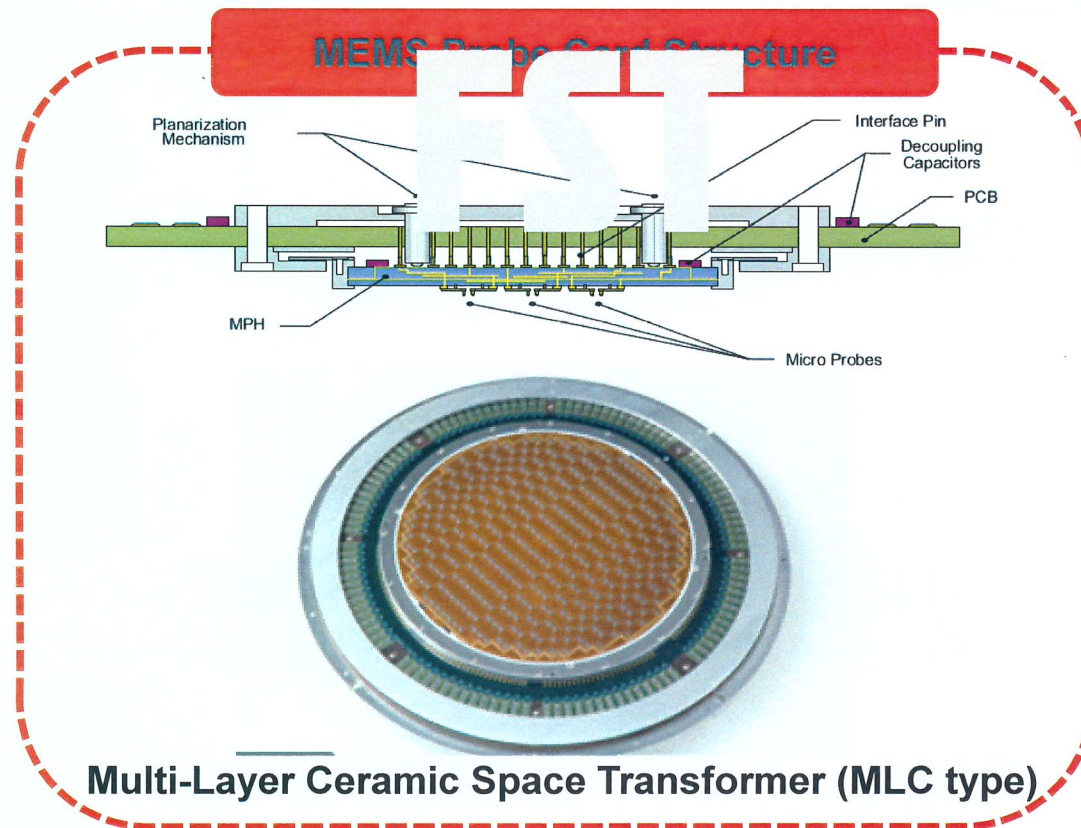


2. Suwon Factory

Location	45, Omokcheon-ro, 152beon-gil, Suwon-si, Gyeonggi-do, KOREA
Main Products	Manufacturing (Multi-layer Ceramic for Probe Card)
Employees	95 ('22. April)

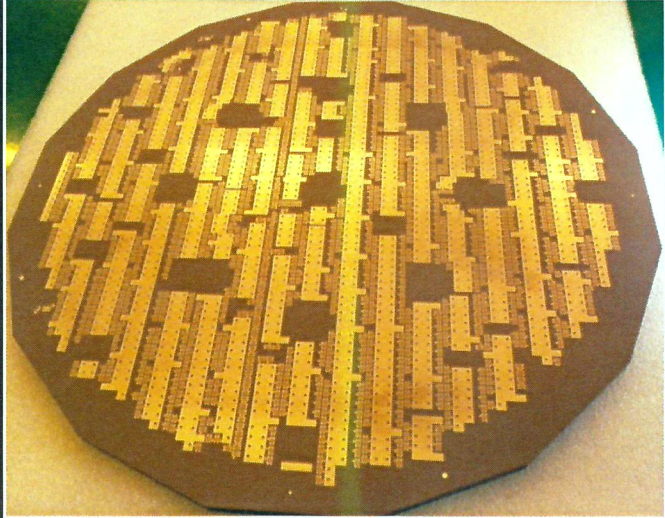
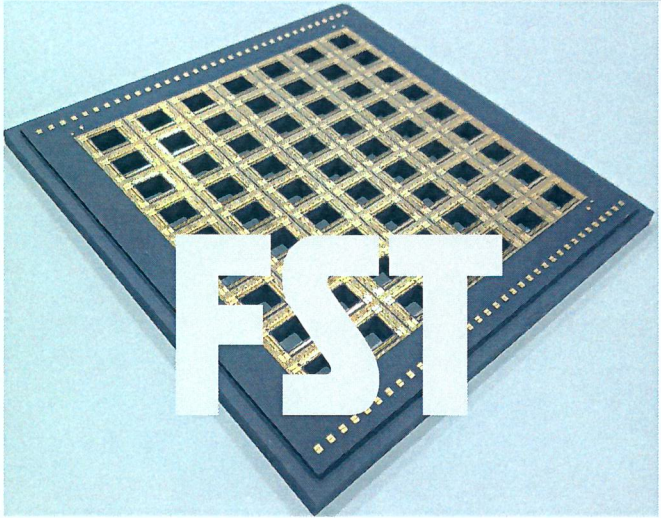
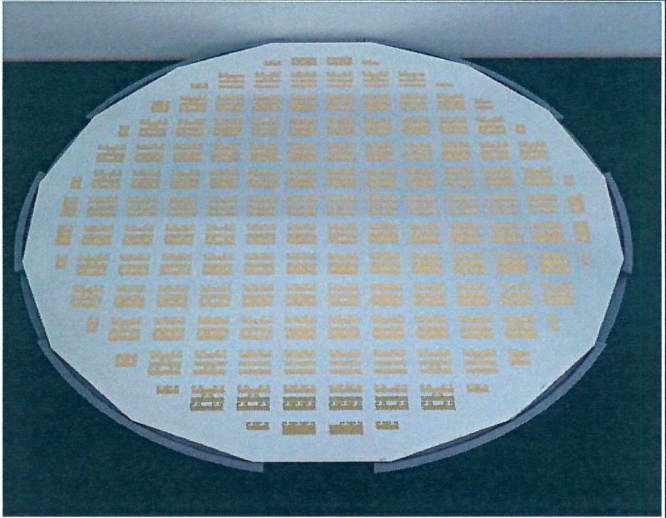


FCT Ceramic Division – Various of Probe Card



Division Profile

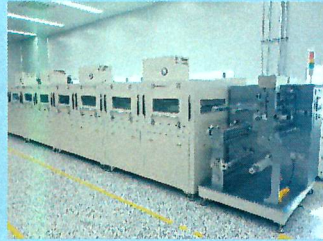
Items of FCT Ceramic Division

HTCC		LTCC
		
<p>DRAM 1478P MLC -. Material : Mullite -. Size : ~12inch</p>	<p>CIS 63P MLC -. Material : Alumina -. Size : ~8inch</p>	<p>LTCC MLC -. Material : Glass Ceramic -. Size : ~12inch</p>

Manufacturing Flow



Ball Milling



Casting



Via Punching



Via Filling



Pattern Printing



AOI



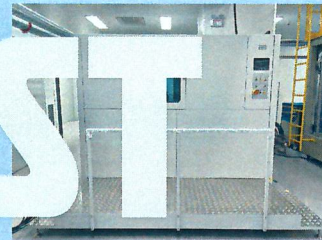
O/S BBT



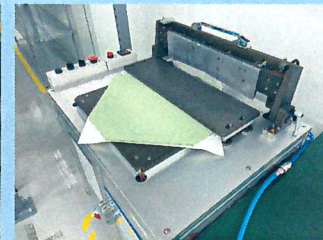
BBT Polishing



Sintering



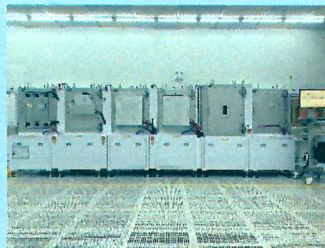
WIP



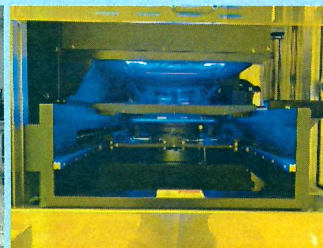
Cutting



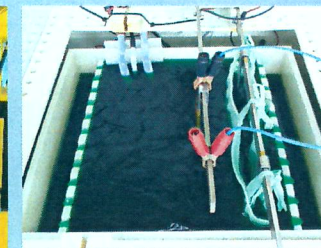
Stacking



Sputter



Photo



Electro Plating



Rdc BBT



Drilling & Grinding

Factory



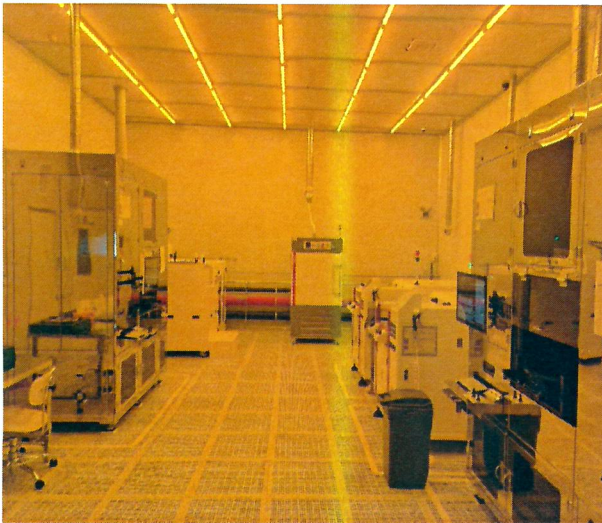
(Casting Room)



(Purifying / Part Room)



(Thin Film Room)



(Photo Room)



(Firing Room)



(Machining Room)

Material Properties of HTCC

Property	HTCC Model			
	Unit	FCA10	FCA01	FCA03
Main material	-	Alumina	Alumina + Mullite	Alumina + Mullite
Color	-	Dark Gray	Dark Gray	Dark Gray
Dielectric Constant	1MHz	1	8.0	8.0
Thermal Expansion	ppm/°C (100°C)	6.2	3.6	4.2
Thermal Conductivity	W/m.K	21	6.1	8
Flexural Strength	MPa 4point (3point)	320 (450)	240	285
Young's Modulus	GPa	300	-	240
Vickers Hardness	HV	1153	1050	1145
Shear Stress	MPa	120	-	180
Sintering Density	g/cm3	3.70	3.20	3.30

Material Properties of LTCC

Property	LTCC Model		
	Unit	Zero Shrinkage type	Shrinkage type
Ceramic Material	-	Glass + Ceramic	
Electrode	-	Via : Ag/Pd Pattern : Ag	
Color	-	White	
Dielectric Constant	1MHz	4	7.4
Thermal Expansion	ppm/°C (100°C)	4.3	4.3
Thermal Conductivity	W/m.K	3.9	3.9
Flexural Strength	MPa 3point	200	220
Young's Modulus	GPa	95	97
Vickers Hardness	HV	-	-
Shear Stress	MPa	-	-
Sintering Density	g/cm ³	3.00	3.00

The Infinite Potential of Materials

2022 Huvis Profile





2022 Huvis Profile

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- 06_ R&D Center
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- 08_ Huvis Global
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- 10_ Award & Certification

[Appendix] 01_ 2021 Financial Summary
02_ Huvis & Subsidiary / Contact Us

Huvis, a synthetic fiber leader in Korea, was born through a strategic JV between SK Discovery and Samyang Holdings Corporation



Combining technical expertise and know-how of the two companies, Huvis is a unified fiber company with the world's top manufacturing capabilities



CEO Shin Youdong

- 2017 03 CEO, Huvis (Present)
- 2016 01 Senior VP, Marketing Support Division
- 2014 01 Senior VP, SF1 Business Division
- 2008 01 VP, FY Division
- 2005 07 Head of the FY Marketing Division
- 2000 11 Export Team Manager, Huvis
- 1999 09 FY Sales Team 1 Manager
- 1987 01 Joined Samyang Corporation

General Information

Company	Huvis Corporation
CEO	Shin Youdong
Date of Establishment	November 1, 2000
Sales	KRW 1,083 bln (As of 2021)
No. of employees	929 (As of 2021)

Business Area	Polyester (SF, FY, Resin), Super Fiber (Aramid, PPS), Industrial Materials
Head Office	12F, 343, Hakdong-ro, Gangnam-gu, Seoul, Korea
Jeonju Plant	787, Girin-daero, Deokjin-gu, Jeonju-si, Jeollabuk-do, Korea
R&D Center	90, Shinilseo-ro, Daedeok-gu, Daejeon, Korea
Homepage	www.huvis.com

Expanding into a global material company through development of advanced materials and business diversification

2000 - 2005

Building a foundation
For growth

- 2000 11 Established Huvis Coporation (CEO Cho Minho)
- 2001 11 World-class product 'LMF'
- 2002 12 Established Huvis Sichuan(China)
- 2003 06 Dupont strategic alliance
- 2004 12 World-class Product 'Stretch yarn'
- 2005 01 Established Daejeon R&D center

2006 - 2011

Improving competitiveness
Through R&D

- 2006 08 Moon Sunghwan became CEO
- 2007 05 Received the Environment Minister's Award 'Jeonju Plant'
- 12 Jeonju City Industrial Peace Award 'Huvis Jeonju Plant'
- 2009 06 The 16th Samwoodang Award 'CEO Moon Sunghwan' (Huvis in the Export class)
- 2010 12 Next World-Class Product 'Zentra'
- 2011 03 Yoo Baekeun became CEO
- 12 World-class Product 'Conju' Next World-Class Product 'Ecoever', 'XN'

2012 - 2016

Winning recognition
In the market

- 2012 02 Listed on Korea Stock Exchange
- 03 Acquired AEO Certification (A Grade)
- 07 'Zentra' NEP Certification
- 12 World-Class Product 'National Merit Enterprise'
- 2013 12 World-Class Product 'ZetaOne' Next World-Class Product 'Ecoever-Bio, RM'
- 2014 11 Acquired HuvisWater
- 12 World-class Product 'Purever'
- 2015 01 Acquired Sound Absorbing Insulation Materials Division of SK Chemicals
- 2016 11 Acquired Industrial Materials division of Samyang Corporation

2017 -

Seeking glocalization
to enhance competitiveness

- 2017 03 Shin Youdong became CEO
- 04 'ECOPET', received Future Packaging New Technology Awards
- 2018 04 Establishment of Huvis Global Corporation
- 06 Established Huvis Indorama Advanced Materials (US)
- 08 Established Nantong Yongsheng HUVIS Advanced Synthetics Inc (China)
- 12 'MetaOne' selected as Next-Generation World-Class Korean Product
- 12 'LMF' received Korea Patent Technology Award
- 2019 11 Established Chongqing Huvis Eco Pack Materials Co.,Ltd (China)
- 11 'Duraron' selected as Next World-Class Korean Product
- 12 'LMF', New Excellent Technology Certification
- 2020 03 'ECOPET' received Jang Young-shil Awards
- 04 Integration of Jeonju-Ulsan Plants
- 12 Next World-Class Product 'EBBR', 'TRIGRID'
- 2021 11 World-Class Product 'Romela' Next World-Class Product 'Polarfil'
- 2021 12 Appointed Kim Geonho as the president in charge of future strategy



Polyester Staple Fiber

550,000 tons / year
 Shortly cut cotton type
 For industrial, home interior, apparel

- Domestic No. 1 in SF market share
- Global No. 1 in LMF market share
- Global No.1 in Conju market share

Super Fiber

Meta Aramid, PPS Fiber, HPPE Fiber
 For fire protective gear, bag filter,
 protective clothing

- Global No. 1 in PPS Fiber market share
- The first provider of Meta Aramid in Korea

Polyester Filament Fiber

40,000 tons / year
 Thread type
 For functional apparel, interior

- Domestic No. 1 in differentiated fiber market share

Industrial Materials

Production of various industrial materials
 High tenacity yarn, Spunbond, Geogird
 Non-Woven fabric for Automobile,
 Constriction

- Domestic No. 1 in high tenacity yarn market share

PET Resin

PET Resin(Grain type)
 For fiber, PET bottle, film

Materials for Household Items

Produce Materials for household items,
 harmless to humans
 Eco-friendly food container materials
 Masks made of a Huvis materials for sanitizers
 High functional non-woven fabrics for cosmetics



THE World's No.1 Fiber

LM **Low Melting Fiber**
No.1 Eco-friendly bonding fiber

ConJu **Conjugate**
No.1 fiber for stuffing

Purever **Purever**
No.1 fiber for sanitizers

Environment Friendly Materials

Ecoever **Ecoever**
Fiber made from recycled PET bottles

ecoen **Ecoen**
Biodegradable PET fiber

MEMORY-ECO **Memory-Eco**
Shape memory fiber

Super Fiber

ZETA ONE **ZetaOne**
Global No.1 in PPS Fiber market share

META ONE **MetaOne**
Korea's first meta-aramid

DURARON **DURARON**
High performance polyethylene fiber for cut resistant glove

Differentiated Fiber

CEY **CEY**
A conjugate yarn combining stretch and emotion

SPN **SPN**
Low denier split type microfiber

Romela **Romela**
Low temperature thermal bonding material

DURARON Cool **Duraron cool**
Cool touch PE fiber

Industrial Materials

TRIRON **TRIRON**
Filament fibers for industrial materials 'High tenacity yarn'

TRIBON **TRIBON**
PP filament non-woven fabrics

GREENNOVA **GREENNOVA**
An Eco-friendly sound absorbing material

GREENVIVA **GREENVIVA**
An Eco-friendly sound absorbing insulation material

TRIGRID **TRIGRID**
Geogrid, reinforcing material for civil engineering

Materials for Household Items

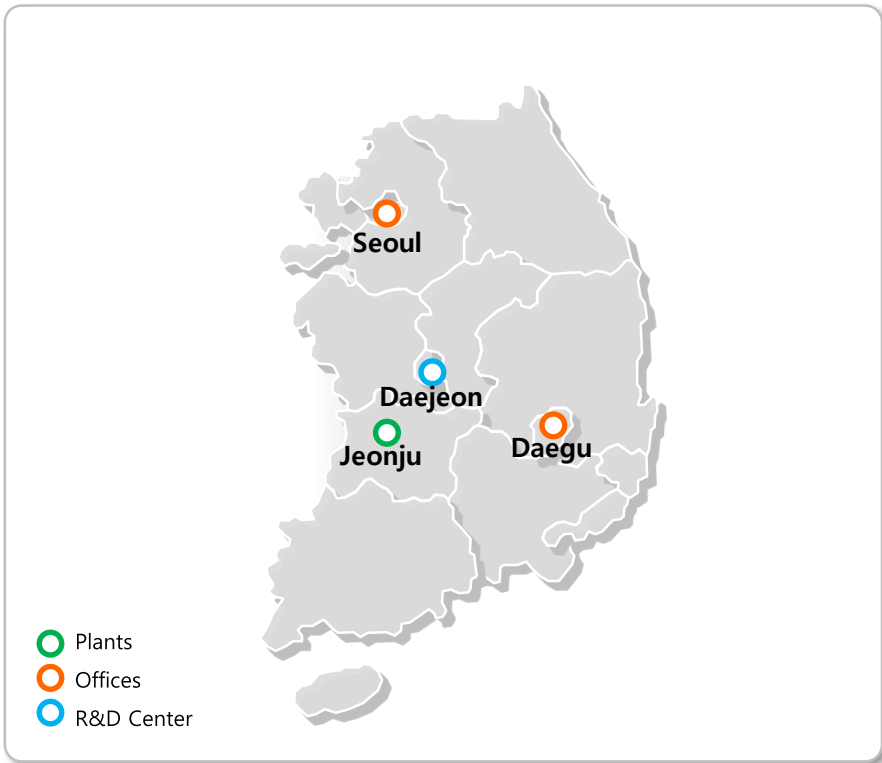
ECOPET **ECOPET**
Eco-friendly food packaging material

purever **Purever Mask**
Masks made of a Huvis materials for sanitizers

Feeliv **Feeliv**
High functional non-woven fabrics for cosmetics

Huvis has established a largest production infrastructure in Korea with an annual production capacity of 760,000 tons

Business Locations



Offices

- Domestic : Seoul Head Office
 Daegu Office



Jeonju 1 plant

- Size : 283,030m²
- CAPA : 336,000 tons / year
- Major product : SF, FY, Resin, Aramid, PPS



Jeonju 2 plant

- Size : 142,690m²
- CAPA : 207,000 tons / year
- Major product : SF, FY, Resin, Industrial materials



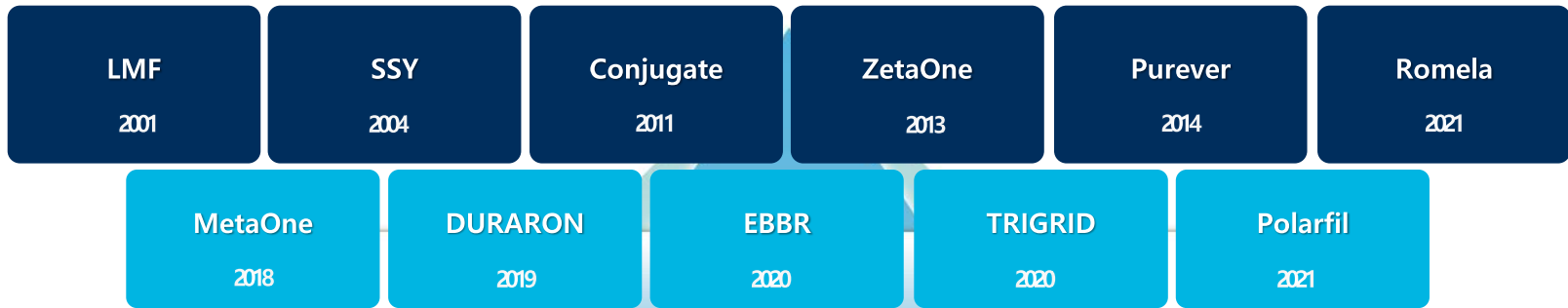
Daejeon R&D Center

- Size : 17,530m²
- No.of Researchers : 50

Huvis continues to expand the production of differentiated products by strengthening R&D capabilities

6 World-Class Products And 5 Next World-Class Products

■ World-Class Product
 ■ Next World-Class Product



World authorities on cutting-edge research in the polyester industry

- Researchers : 50 (as of 2021)

Holds many patents from polyester to super fibers

R&D infrastructure



• Advanced facilities

- Autonomous pilot facilities capable of handling everything from raw materials input through to manufacturing, post-processing and evaluation
- High-quality products developed with rapid R&D to meet client demands

• R&D network based on open innovation

- Organic cooperative relations with national research centers, universities, and leading companies in Korea and overseas

A leader of the Chinese staple fiber industry, and eco-friendly enterprise

Trying to increase the sales of differentiated high-yield products such as Hygiene bico

Introduction of Huvis Sichuan



Date of Establishment	December 30, 2002
CEO	Kim Junggi
No. of Employees	361 (As of 2021)
Sales	KRW 230 bln (As of 2021)
Business Area	Polyester Staple Fiber
Shareholders	Huvis Corporation : 100%
Homepage	www.huvis.com.cn

Business Locations



Sichuan (China) Head Office / Plant

- Size: 163,700 m²
- CAPA : 160,000 tons/year
- Major product : Polyester Staple Fiber

Offices

- Shanghai / Guangzhou Office

Huvis's global investment platform, seeks for international business opportunities and makes overseas investment

Pursue 'synergy-driven and future-oriented' investment opportunities

Introduction of Huvis Global



Date of Establishment	April 30, 2018
CEO	Shin Hyunsuhp
Business Area	Overseas investment and M&A, foreign subsidiary management
Facilities	Head Office (Gangnam-gu, Seoul)
Homepage	www.huvisglobal.com

Business Portfolio

Huvis Indorama Advanced, LLC

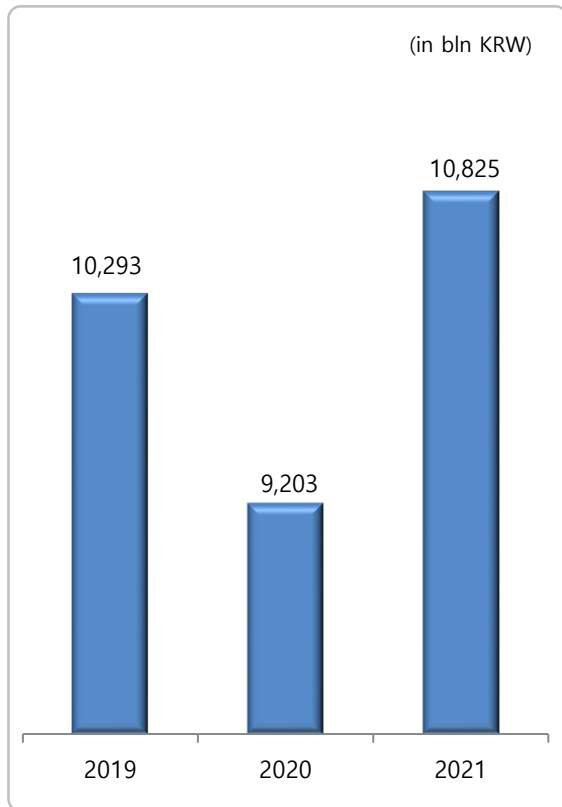
- **Facilities** : City of Spartanburg, South Carolina, USA
- **Date of Establishment** : June 18, 2018
- **Business Area** : Manufacture of Low Melting Fiber in the U.S. and sales in NAFTA
- **Capacity** : 60,000 tons / year
- **Shareholder Status** :
 Huvis Global Corporation 50%
 Indorama Ventures Holdings LP 50%
 (U.S. subsidiary of Indorama Ventures, PCL)

Chongqing Huvis Ecopack Materials, Co., Ltd.

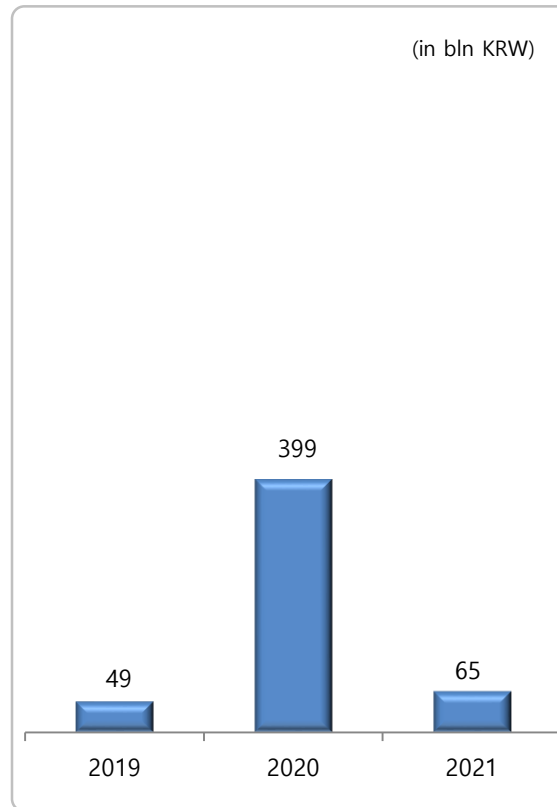
- **Facilities** : City of Chongqing, China
- **Date of Establishment** : December 13, 2019
- **Business Area** : Manufacture of ECOPET and sales in China
- **Capacity** : 3,000 tons / year
- **Shareholder Status** :
 Huvis Global Corporation 48.8%
 Huvis Sichuan : 28.2%
 Beike New Material Co., Ltd. 13%
 Chongqing Jiangtong Huanbao Suye Co., Ltd. 10%

Huvis achieved sales of KRW 1,082 billion and operating profit of KRW 6.5 billion in 2021

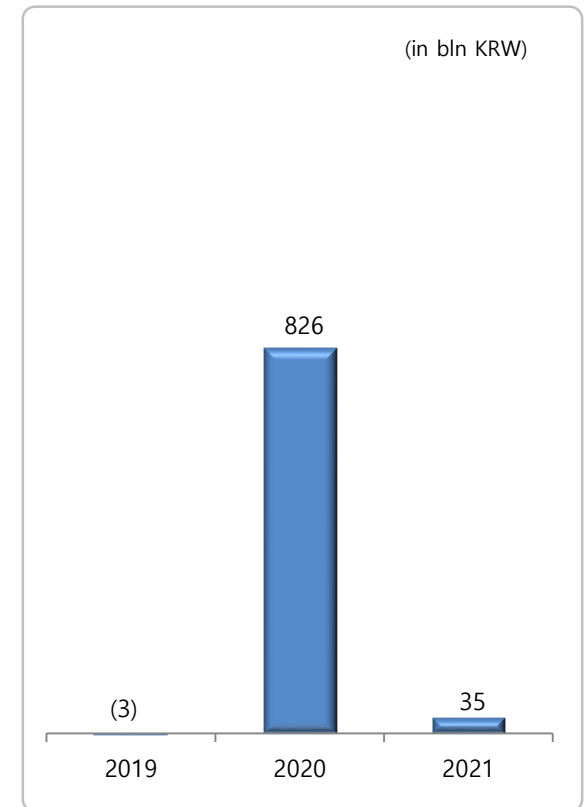
Sales



Operating Profit



Net Profit



* K-IFRS standard

Award & Certification



World-Class Product

- 2001 Low-Melting Fiber (LMF)
- 2004 Stretchable filament yarn (SSY)
- 2011 Conjugate fiber (Conju)
- 2014 Polyphenylene sulfide fiber (ZetaOne)
- 2014 Hygiene bico fiber (Purever)
- 2021 Low melting filament yarn (Romela)



Next World-Class Product

- 2018 Meta Aramid fiber (MetaOne)
- 2019 High performance PE fiber (Duraron)
- 2020 A differentiated filament yarn (EBBR)
- 2020 Geogrid, reinforcing material (Trigrid)
- 2021 Eco-friendly hollow fiber (Polarfil)



Certification

- 2020.07 IR52 Jang Young-shil Award(ECOPET)
- 2019.12 NET(New Excellent Technology) Certification(LMF)
- 2018.12 Korea Patent Technology Award, King Sejong Award(LMF)
- 2018.05 WPO World Star Award(ECOPET)
- 2017.12 APF Asia Star Awards(ECOPET)
- 2017.04 Prime Minister's Award at the 11th GOV Award for Future Packaging New Technology(ECOPET)
- 2016.09 NET(New Excellent Technology) Certification (HexaFlower)
- 2012.12 World-Class Product National Merit Enterprise Award
- 2012.05 NEP(New Excellent Product) Certification(Zentra)



Eco Friendly

- 2012.04 Green Company by the Ministry of Environment
- 2012.04 Energy-saving Recycle Green Technology Certification
- 2011.10 GRS Certification(Ecoever)
- 2011.09 Environmental Labeling Certificate(Ecoever)
- 2009.08 Environmental Labeling Certificate(Ecoever)
- 2007.05 Green Company by the Ministry of Environment



Investor Relations 2021

Appendix

01_ 2021 Financial Summary

Financial Statements (Consolidated)

Profit and loss Statements (Consolidated)

02_ Huvis & Subsidiary / Contact Us

Financial Statements (Consolidated)

* K-IFRS standard

(in million KRW)

Classification	2021	2020	2019
Current assets	341,936	397,917	288,450
Non-current assets	501,479	474,942	588,721
Total assets	843,415	872,859	877,171
Current liabilities	331,277	297,994	342,226
Non-current liabilities	44,295	99,077	138,819
Total liabilities	375,572	397,071	481,045
Capital stock	172,500	172,500	172,500
Capital surplus	24,898	25,550	25,550
Capital Adjustments	4,363	-3,040	-4,121
Retained earnings	265,170	276,210	199,614
Accumulated other comprehensive income	912	4,567	2,583
Total shareholders' equity	467,843	475,787	396,126

Profit and loss Statements (Consolidated)

* K-IFRS standard

(in million KRW)

Classification	2021	2020	2019
Sales	1,082,572	920,303	1,029,346
COGS	995,168	797,006	928,225
Gross profit	87,404	123,297	101,122
SG&A	80,913	83,427	96,254
Operating profit	6,491	39,870	4,867
Income and Loss before Income Taxes	2,254	102,670	1,561
Income Taxes	-1,242	20,039	1,854
Profit/loss from discontinued operations after tax	0	0	0
Net income	3,496	82,631	-293
Other Comprehensive Income	3,117	434	-1,434
Total Comprehensive Income	6,613	83,065	-1,728



OFFICES

Seoul Head Office	12F, 343, Hakdong-ro, Gangnam-gu, Seoul, Korea (06060)	TEL : 82-2-2189-4567
Daegu Office	10F, 488, Gukchaebosang-ro, Jung-gu, Daegu, Korea (41931)	TEL : 82-53-252-8881

PLANTS / R&D CENTER

Jeonju Plant 1	787, Girin-daero, Deokjin-gu, Jeonju-si, Jeollabuk-do, Korea (54881)	TEL : 82-63-210-2114
Jeonju Plant 2	145, Palbok-ro, Deokjin-gu, Jeonju-si, Jeollabuk-do, Korea (54886)	TEL : 82-63-210-2114
Daejeon R&D Center	90, Shinilseo-ro, Daedeok-gu, Daejeon, Korea (34326)	TEL : 82-42-930-4567



OFFICES / PLANTS

Head Office / Plant	Xinmin Guard, DaAn District, Zigong, Sichuan, China (643010)	TEL : 86-813-530-8201
Shanghai Office	Rm.2003, Sheng gao International Tower, No.137 Xian Xia Road, Shanghai, China (200051)	TEL : 86-21-5206-4588 (EXT : 801)
Guangzhou Office	Rm.1810, Tower South, Jinbin Dragon Fly Building, No.49 Huaxia Road, Zhujiang New Town, Tianhe, Guangzhou, China (510623)	TEL : 86-20-3887-2510 (EXT : 801)



OFFICES

Seoul Head Office	12F, 343, Hakdong-ro, Gangnam-gu, Seoul, Korea (06060)	TEL : 82-2-2189-4567
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