

Create **NEW VALUES** with **NEW MATERIALS**

Eco-friendly rebar and construction
brand replacing steel rebar

KEco Bar



KEco Vision

KECO is the safest, most economical and sustainable building material.

KEco for those who build the present and those who enjoy the future, your better choices create a better tomorrow.

* KEco is KCMT's own brand of GFRP material that has been upgraded to maximize its eco-friendliness while refining its limitations.



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Korea Composite Material Technology

2024

- Designated as an Innovative Product and **Excellent Procurement Product (Outstanding Product)**
- Green Certification and Environmental Product Declaration (EPD) Certification
- **Established KDS Bridge Design Standards and KCS Bridge Construction Standard Specifications**
- **Establishment of the GFRP General Standard under the 14-series Code (KDS/KCS)**
* KDS (Korea Design Standard for Concrete Structures) and KCS (Korea Construction Standard for Concrete Works)

2023

- K-Mark Certification & Construction Recycled Resources Technology Certification KCMT has obtained the K-Mark certification and the Technology Certification for Construction Recycled Resources.
- **We have begun the production of bent-type KEco Rebar and achieved the first-ever mass production in Korea of K-Eco Bar, which integrates recycled colored and colorless PET with SMfree eco-friendly resin.**

2022

- **Launched GFRP construction material brand 'KEco'**
- Established 1st and 2nd production factories in the Ulsan City Energy Convergence Industrial Complex
- **Investment Attraction for SK Ecoplant**

2016

- **Started supplying GFRP rock bolts for the first time in Korea ('Ministry of Land, Infrastructure and Transport'. and 'Korea Expressway Corporation')**
- Quality standard establishment revision of standard specifications and professional specifications

2014

- **Establishment of KCMT Co., Ltd.**

The new name for the eco-friendly rebar alternative GFRP is KEco Bar.

KEco Bar : The Only GFRP Rebar in Korea Selected as an Excellent and Innovative Product by the Public Procurement Service

• Electronic Contract Process for Excellent Products on the National Marketplace

Public Procurement Service Demand Institution Procurement Supplier

▪ Direct Contract



▪ Central Procurement Contract



• Benefits of Purchasing Excellent Procurement Products

▪ Subjects of Private Contracts Without Amount Restrictions Under the National Contract Act and Local Contract Act

※ Article 26(1)(3)(b) of the Enforcement Decree of the National Contract Act and Article 25(1)(6)(e)-5 of the Enforcement Decree of the Local Contract Act

▪ Support for Purchasing Excellent Procurement Products as an Institutional Mechanism for Buyer's Purchase Indemnification

※ Article 14(3) of the Market Support Act: Purchase Indemnification Unless Willful Misconduct or Gross Negligence is Proven

▪ Included in the Priority Purchase Target for Technology Development Products

※ According to Article 13 of the Market Support Act and Article 12 of its Enforcement Decree, public institutions and other entities must purchase at least 15% of their total procurement amount for SME products as technology development products (a total of 13 categories).

▪ Products registered in the Nara Market Comprehensive Shopping Mall can be easily purchased without the burden of separate contract execution.

▪ Awarding Outstanding Institution Representatives Among Excellent Procurement Product Purchasing Organizations (Once a Year)

What is GFRP (Glass Fiber Reinforced Polymer) reinforcement bar?

A polymer-based composite reinforced with glass fibers in the form of rebar. It is the only existing rebar alternative that addresses environmental, safety, and sustainability issues in the construction industry.

• GFRP Rebar Key Advantages

Lightweight	With 1/4 the weight of steel rebar and reduced construction time, → GFRP rebar ensures enhanced cost efficiency
High strength	2 times stronger than SD400 steel → Rebar Improving structural stability
Corrosion resistance	Corrosion-resistant and semi-permanent materials help reduce building life cycle costs (LCC) and provide significant → maintenance cost reduction effects
Non-magnetic, non-conductive	Ideal for Facilities Sensitive to Electromagnetic Fields → Provides electromagnetic stability, No electrical insulation required
Net Zero	Carbon emission less than 73% of the production of the steel rebar → Contribution to Carbon Neutrality ESG Management Solutions
Thermal insulation	Improving safety in case of fire with thermal insulation properties and nonflammable characteristics

**Corrosion
resistance
&
Chemical
resistance**

Roads and Bridges



Marine Structures



**Industrial Foundations, Sewage
Treatmen**



Airport Runway



**Non-
magnetic
&
non-
conductive**

Railroad



Semiconductor, Logistics, ESS



Power Plant, Substation



**Hospitals and Research
Facilities**



Lightweight

Island Regions



Mountain Areas



Precast Concrete



Construction in General





KEco has developed its own brand,
KEco Rebar and KEco Rock bolt,
which replace traditional steel reinforcement.
These products **enhance eco-friendliness**
by leveraging proprietary technology
while addressing the drawbacks of
conventional GFRP materials.

KEco Introduction

3 Core Technology of KEco Bar

01

Recycled PET and Hazardous Substance Removal Eco-friendly Resin Development Technology



**Colored and
Colorless
PET Recycling**



**Eco-friendly
Resin for
SM¹ Removal**

Maximization of Eco-friendly Value

(SM Removal: Achievement of Full-component Eco-friendliness and Human Safety, Patent Registered)

Price Competitiveness Secured

Through Vertical Integration of Resin Manufacturing Companies

World's First and Exclusive Technology for

Recycling Colored and Colorless Waste PET (Patented)

02

Surface Shape Processing Technology



KEco Bar Product

Rebar-Embedded Integral Type


Method

Implementation of Depressed Ribs by Separately Impregnating Resin into Inner and Outer Yarn, Then Integrally Winding and Molding

Features

Formed as an **integrated** structure without a separate external **attachment process**, enhancing bond **strength** and **long-term durability**.

Other GFRP Rebar Products

Category	Externally Attached Rib Type	Externally Attached Silica Sand Type
External Shape		
Method	Glass fiber rods are helically bonded to the external surface of a single-rodformed circular GFRP rebar.	Silica sand is coated and attached to the external surface of a single-rodformed circular GFRP rebar.

03

Quality Excellence



Material and Product Production History Management System

Fully Automated Smart Factory Implementation and Optimized Quality & Environmental Management System (Ensuring the World's Best Quality)

Structure		Steel Rebar	General GFRP Rebar	KECO Bar	Competitive Advantage
unit weight (g/cm ³)		7.85	1.97	2.1	Higher Glass Fiber Content Compared to Regular GFRP Rebar (Around 80%, vs. Competitors' 70%)
Strength	Tensile Strength (MPa)	400 – 600	800 – 1,000	1,000-1,400	Achieving the Highest Tensile Strength in the Industry Due to High Glass Fiber Content and Superior Resin Quality
	Adhesion Strength (MPa)	14	10	Over 15	Achieving Integrated Depressed Ribs, Securing the Highest Bond Strength in the Industry
Environment	Resin	-	SM Resin	PET Recycling SM Free	Recyclable Without Distinguishing Between Colored and Colorless PET, Eliminating Odor, Fire Hazards, and Health Risks
	Carbon Emissions (tCO ₂ /ton)	2.68	1.1	0.89	73% Reduction in Carbon Emissions Compared to Rebar, Further Reduced Through Full Process Automation Compared to Industry Peers

1. KEco Construction Efficiency Analysis

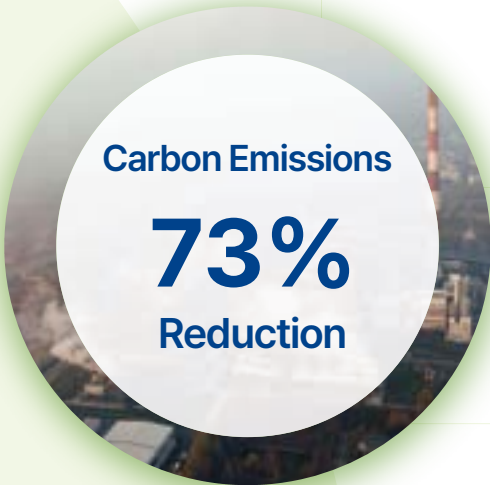
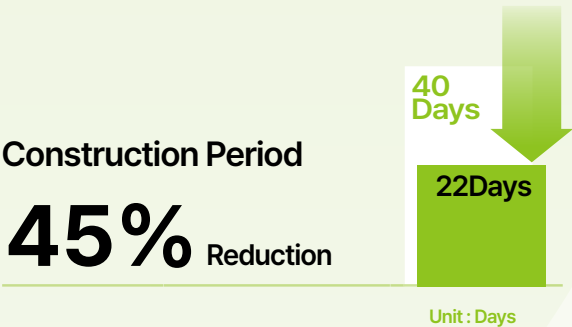
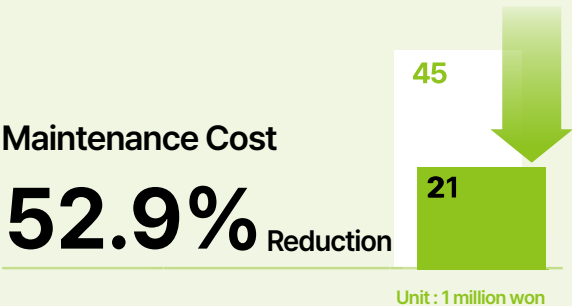
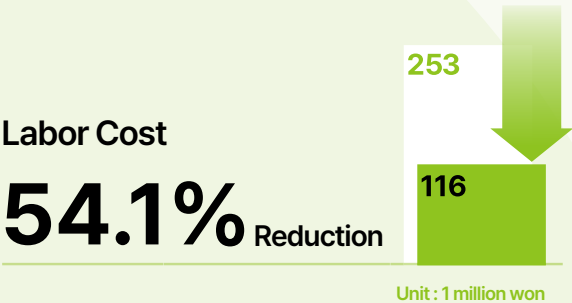
KCMT's new factory construction in Ulsan Energy Convergence General Industrial Complex, including the foundation work for a 33,000-square-meter production facility.



Improvement in Construction
Productivity Compared to Rebar

176%¹

Comparative analysis of KCMT 1st factory's foundation construction costs (vs. steel rebars)



2. Smart Factory Equipment Installation and Production Capability



Smart Factory Production Equipment Line



Affiliated Corporate Research Institute



Production History Management System

90 Production Lines Annual Total of 300,000 Tons (Steel Rebar Equivalent) Production Scale

♻️ Recycling Effect of Over 120 Million Waste PET Bottles
(Recycling Effect of 1 PET Bottle (2.0L) per Meter)



Exterior view of the resin company

1 Automation, Quality

Production of High-Quality Products Through Automated Equipment

2 Economies of Scale

Possessing the Largest Production Capacity in Korea: 300,000 Tons Annually (Rebar Equivalent)

3 Raw Material Supply

Enhancing Quality and Ensuring Supply Security through Vertical Integration with Resin Suppliers



Production Process

01
Raw Material
input

Glass Fiber

02
Resin
Impregnation

Thermosetting Resin

03
Resin
Impregnation 2

Dual Rod
Formation

04
Winding

Molding

05
Curing

Corrosion Resistance

06
Rewinding

Molding

07
Product Cutting

Custom Processing

3. Quality Control Capability

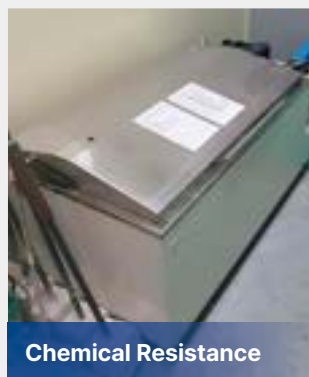
Establishing an Optimized System for Quality and Environmental Management



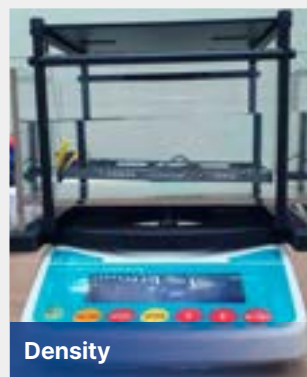
Obtaining Certifications for Quality Management System (QMS) and Environmental Management System (EMS)



Mechanical Properties



Chemical Resistance



Density



Impregnation Amount Measurement

In-House Procurement of Evaluation Equipment for Product Assessment

4. KECO Bar Product Introduction

KEco Bar includes straight-line rebar, mesh, and bending shapes that can be applied to structures and buildings. It has been developed with decades of experience in product development in the fields of construction, mining, and infrastructure and philosophy for future generations, we have already secured achievements in various construction fields.



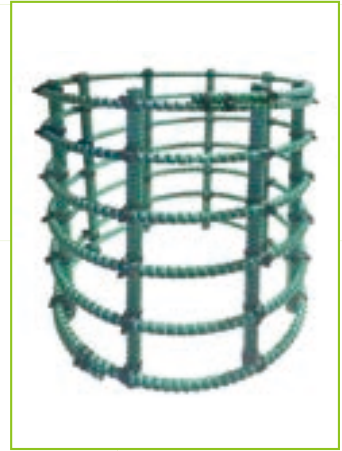
KEco Rebar



KEco Rebar Bending Type



KEco Rebar Mesh Type

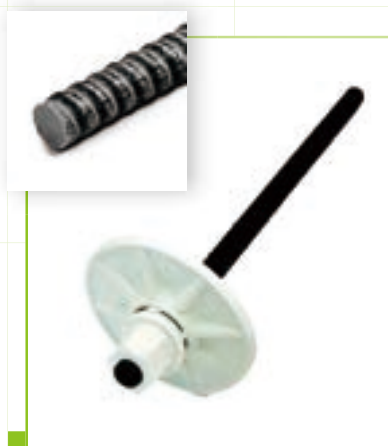


KEco Rebar Coil Type

KECO Rebar
Capable of Applying Various Colors



KEco is a glass fiber reinforced plastic self-threading product, consisting of solid and hollow types. The solid/hollow type KEco Rock bolt has been tested in tunnel sites and confirmed its superior performance compared to steel Rock bolts. KEco Rock bolt is divided into **KEco Rock bolt** used for rock and **KEco Soil-Nail** used for soil as civil engineering materials, and is widely used around the world for its excellence in stability and construction quality.



KEco Rock bolt(Solid)



KEco Rock bolt(Hollow)



KEco Injection Jig (Applicable to Hollow Type)



KEco Rebar Material Properties and Product Specs (Compared to Rebar), Application

• January 2024 : Ministry of Land, Infrastructure and Transport KCS (Standard Specifications for Bridge Construction Using GFRP Rebar), KDS (Establishment of Design Standards for Bridges Using GFRP Rebar)

Comparison of properties between Steel rebar vs KEco Bar

Structure	Deformed Rebar(SD400)	KEco-Bar
Density(g/cm³)	7.85	1.9~2.2
Tensile Strength(MPa)	≥400	≥1000
Modulus of Elasticity(GPa)	200	50~60
Thermal conductivity(W/mk)	46.00	0.30
Adhesion Strength(MPa)	10~14	≥15
Corrosion resistance	Vulnerable to chloride	Not corrosive to chlorides
Magnetism	Positive	Negative
Electrical conductivity	High	Low
Bending	Possible	Possible(bending is not possible on-site)
Welding	Possible	Not Possible

KEco Rebar Standard Specification

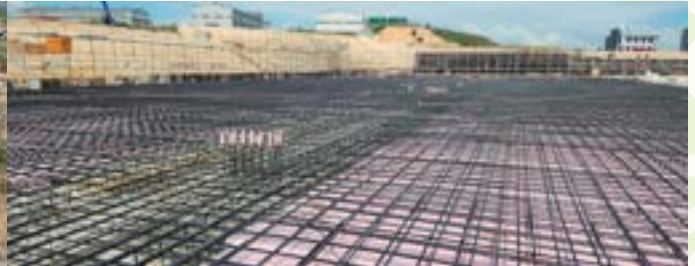
Type No. (Procurement Item Model Name)	Nominal Diameter (mm)	Nominal Area (mm²)	Ultimate Tensile Load (kN)	Guaranteed Tensile Strength (MPa)	Modulus of Elasticity (GPa)	Weight (g/m)	Shear strength (MPa)
G-Rebar VRS100-8	8.0	49.5	52	1,051	≥50	104.0	≥150
G-Rebar VRS100-10	9.5	71.3	74	1,038	≥50	149.8	
G-Rebar VRS100-13	12.7	126.7	123	971	≥50	266.2	
G-Rebar VRS100-16	15.9	198.6	186	937	≥50	417.3	
G-Rebar VRS100-19	19.1	286.5	253	883	≥50	601.9	
G-Rebar VRS100-22	22.2	387.1	333	860	≥50	813.3	
G-Rebar VRS100-25	25.4	506.7	428	845	≥50	1,064.7	
G-Rebar VRS100-29	28.6	642.4	529	823	≥50	1,348.3	
G-Rebar VRS100-32	31.8	794.2	631	795	≥50	1,666.6	

KEco Rebar Case studies and Clients

KEco Rebar Case studies



KCMT HQ and Factory 1



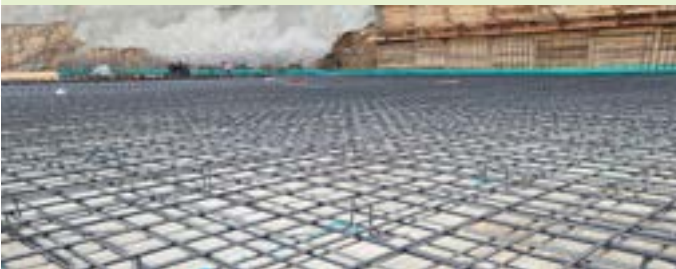
KCMT HQ and Factory 2



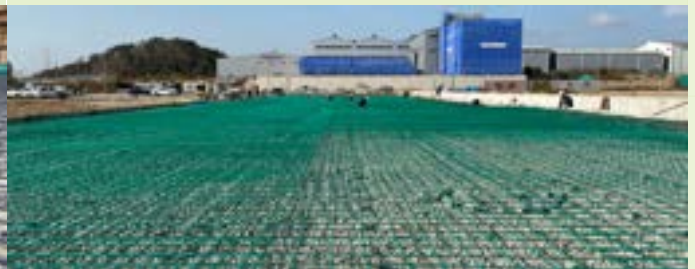
Panasia Co., Ltd. Factory 3



Gyeongju Ecopolymer Factory



Busan Jangnimdong Factory



Stone Factory Plus Factory



National System



Pacific Precision Machinery



Gimpo K1 Logistics Center



Busan Ulsan Gyeongju Gijang Logistics Center

KEco Rebar Case studies and Clients

KEco Rebar Case studies



Tongyeong Starbucks



Sejong Chungnam National University Hospital MRI Room



Leachate Treatment Facility at Myeonggye Industrial Complex, Gyeongju



Gijang-gun Jeonggwan Sports Center



Pohang-Yeongdeok Expressway Section 1



Sejong-Anseong Expressway Section 14



Changnyeong-Miryang Expressway Section 1 CRCP



Pohang-Yeongdeok Expressway Section 5



Anseong-Guri Expressway Section 14 Bridge Slab



Hamyang-Changnyeong Expressway Section 5

KEco Rebar Case studies and Clients

KEco Rebar Supply Histor

Client	Application	Delivery Month	Supplied products
Hyundai E&C	Shaheen Ethylene Plant Construction Project PKG1	2024. 10~	VRS100-13mm
Hyundai E&C	PAMJ LINE 3 OF THE PANAMA METRO J/V	2024. 10~	VRS100-16, 32mm
Hyundai Heavy Industry	Offshore Yard Workshop Refurbishment	2024. 07 ~	VRS100-13, 16mm
Kari	Factory New Construction	2024. 07 ~	VRS100-16mm
ESRC	Factory Expansion	2024. 07 ~	VRS100-10mm
SKC&I(Freelock)	Myeongji Eco Delta City Factory New Construction	2024. 06 ~	VRS100-13, 16mm
Hyundai Heavy Industry	Foundation work	2024. 06 ~	VRS100-16mm
JL Sports	Factory New Construction	2024. 06 ~	VRS100-13mm
Hyundai Heavy Industry	Foundation work	2024. 06 ~	VRS100-16mm
Korea Expressway Corporation	Yeongdong Line Slope Reinforcement Section 2	2024. 06 ~	VRS100-16, 25mm
	Joonghwa San Dong Neighborhood Industrial Facilities	2024. 06 ~	VRS100-19mm
Daejeon Metropolitan City	Construction of Bomun Mountain Observatory	2024. 06 ~	VRS100-10, 13, 19mm
The S&C	Factory New Construction	2024. 05 ~	VRS100-13, 19mm
Dongwoo Precision Machinery	Factory New Construction	2024. 04 ~	VRS100-13mm
Changshin Precision Machinery	Factory New Construction	2024. 04 ~	VRS100-13mm
Geoheung Industrial Co., Ltd	Factory New Construction	2024. 03 ~	VRS100-16, 19mm
Gaya Technology	Factory New Construction	2024. 03 ~	VRS100-13, 16mm
Kyongdong Chemical Co., Ltd	Factory New Construction	2024. 03 ~	VRS100-10mm
Daehan Laser Co., Ltd	Factory New Construction	2024. 02 ~	VRS100-13, 16mm
Busan Transportation Corporation	Busan Metro Yangsan Line (Nopo-Bukjeong) Section 2	2024. 02 ~	VRS100-16mm
Island Development	New Construction 508-11 Shinam-ri	2024. 01 ~	VRS100-13, 16mm
Shinsegae Property	Starbucks New Construction in Tongyeong	2024. 01 ~	VRS100-16, 19mm
Island Development Co., Ltd	Mock-up of Retained Formwork for Pier Foundation	2024. 01 ~	VRS100-16mm
Gijang gun, Busan	Sports Healing Park New Construction, Jeonggwan New City	2023. 12 ~	VRS100-16mm
National System	Factory New Construction	2023. 12 ~	VRS100-16mm
AUTOREX Co., Ltd.	QC Building New Construction	2023. 12 ~	VRS100-13mm
Korea Expressway Corporation	Pohang-Yeongdeok Expressway Section 2	2023. 12 ~	VRS100-13mm
Stone Factory Co.,Ltd	Factory New Construction	2023. 12 ~	VRS100-13mm
Pacific Precision Machinery	New Factory Construction at Daedong Advanced General Industrial Complex	2023. 12 ~	VRS100-10, 16mm
Nine Engineering	New Factory Construction at Daedong Advanced General Industrial Complex	2023. 12 ~	VRS100-10, 19mm
Korea Expressway Corporation	Pohang-Yeongdeok Expressway, Section 3	2023. 11 ~	VRS100-13, 19, 22mm
Korea Expressway Corporation	Bridges No. 3, 4, and 5 at Yongin Junction, Section 6 of the Anseong-Seongnam Expressway	2023. 11 ~	VRS100-13, 19, 22mm
Panasia Co., Ltd.	Panasia Factory No. 3	2023. 10 ~	VRS100-13, 16mm
Korea Expressway Corporation	Pohang-Yeongdeok Expressway, Section 5	2023. 10 ~	VRS100-13, 22mm
Daesong Tech	Factory New Construction	2023. 10 ~	VRS100-13mm
Korea Space Weather Center	Jeju Space Radio Monitoring Center	2023. 10 ~	VRS100-13mm
Financial Investment in the Logistics Project of Busan-Ulsan-Gyeongnam Region	New construction project for the BUK (Busan-Ulsan-Gyeongnam) Logistics Center	2023. 09 ~	VRS100-13, 16mm
K1 Kimpo Logis PFV	Gimpo K1 Logis Logistics Center	2023. 09 ~	VRS100-16mm
Stad impulse	Germany	2023. 08 ~	VRS100-8, 10mm
Gyeongju City	Waste Landfill Facility at Myeonggye 3 General Industrial Complex	2023. 08 ~	VRS100-10, 13, 16, 19mm

KECO Rebar Supply Histor

Client	Application	Delivery Month	Supplied products
	Woojin Steel Co., Ltd. (K-ECO Bar Corporation)	2023. 08 ~	VRS100-10mm
Panasia Co., Ltd.	Panasia 3rd Plant	2023. 07 ~	VRS100-22mm
Gyeongju, Gyeongsangbuk-do	Waste Landfill Facility at Myeonggye General Industrial Complex	2023. 07 ~	VRS100-13, 22mm
Korea Expressway Corporation	Section 1 of the Pohang–Yeongdeok Expressway	2023. 05 ~	VRS100-10, 13, 16, 19, 22, 25mm
ECOPOLYMER Co., Ltd	ECOPOLYMER Factory in Gyeongju	2023. 05 ~	VRS100-19mm
Gyeongseo Heavy Industry Co., Ltd	Hampyeong Gangseo Heavy Industries	2023. 01 ~	VRS Ø10, 13, 16mm
Yongin General Industrial Complex Co., Ltd.	Yongin Semiconductor Cluster General Industrial Complex	2022. 10 ~	VRS Ø19, 22mm
Korea Expressway Corporation	Section 1 of the Changnyeong–Miryang Expressway	2022. 08 ~	VRS Ø19, 22mm
JMG Tech Co., Ltd	Foundation Reinforcement Bars for Factory Building Construction	2022. 05 ~	VRS Ø10mm
CHEMBASE VINA Co., Ltd	Vietnam	2022. 04 ~	VRS Ø19mm
KCMT Co., Ltd.	Foundation Reinforcement Bars for KECO Plant 1 and 2 Construction	2022. 05 ~	VRS Ø16, 19mm
Jungyang SG Co., Ltd.	Reinforcement Bars for Thermal Break Systems in Building Construction		
Pyeongtaek P3 Project Tunnel Construction	Tunnel Construction	2021. 12 ~	VRS Ø25mm
Seohae Line	Soundproof Wall Construction (Tunnel Site Area)	2021. 11 ~	VRS Ø13mm
Construction Work in Jangnim-dong, Busan	actory Site Foundation and Retaining Wall	2021. 10 ~	VRS Ø19mm
Seohae Line	Noise Barrier Construction (Precast Concrete Fabrication)	2021. 09 ~	VRS Ø13mm
Korea Expressway Corporation	Section 14 of the Anseong–Guri Expressway	2021. 06 ~	VRS Ø16, 19, 22, 25mm
Korea Electric Power Corporation	Construction of a Demonstration Test Site for Reducing Magnetic Field Exposure from Power Transmission and Distribution Systems	2021. 02 ~	VRS Ø10mm
Samsung Electronics Co., Ltd.	Semiconductor Plant Infrastructure Development in Pyeongtaek Godeok	2020. 10 ~	RS Ø25mm
Hyosung LB Deck	Deck Reinforcement Bars	2020. 08 ~	RS Ø13mm
Construction of Sejong Chungnam Hospital	Foundation Reinforcement Bars for MRI Room	2020. 04 ~	RS Ø19mm
Sampyo P&C Co., Ltd.	Reinforcement Bars for Architectural Precast Concrete	2019. 11 ~	RS Ø14mm, VRS Ø16mm
ECOSITE Co., Ltd.	Micropile	2018. 12 ~	RS Ø25mm, Ø28mm
Incheon Port International Passenger Terminal	Phase 1 Site Development Work	2018. 10 ~	RS Ø10mm, Ø14mm
Tbblock Co., Ltd.	Reinforcement Bars for Thermal insulation barrier in Building Construction	2017. 07 ~	VRS Ø16mm
Gyeongnam National University of Science and Technology	Reinforcement Bars for Precast Track Structures	2016. 11 ~	RS Ø13mm

* Detailed Information Available Upon Request for Delivery Performance Certificate

KEco Rebar Material Properties and Product Specs (Compared to Rebar), Application

- April 2016 : Establishment of GFRP Rock bolt Specifications Led by Korea Expressway Corporation
- August 2017 : Establishment of Specialized Specifications by Korea Rail Network Authority and Integration of Codes by the Ministry of Land, Infrastructure and Transport (Quality Standards Established)

GFRP Rock bolt Quality Standards

Structure	Unit	Quality Standards
The tensile strength	MPa	≥850
Shear Strength	MPa	≥150
Glass Fiber Content	%	≥75
Minimum Diameter	mm	≥20

Comparison of Material Properties and Products : Rebar Rock Bolt vs. KEco Rock bolt

Structure	Deformed Bar Rock bolt (Rebar Type)	KEco Rock bolt(Solid)	KEco Rock bolt(Hollow)
Materials	SD35 Standard Deformed Steel Rebar	GFRP (Glass Fiber SD35 Standard Deformed Steel Rebar Reinforced Polymer)	GFRP (Glass Fiber Reinforced Polymer)
Nominal Diameter	D=25.4mm	D=23.5mm	D = 27/12 mm (Hollow)
Weight(4m)	15.92kg	3.88kg	3.88kg
The tensile strength	More than 490 MPa	More than 850 MPa	More than 850 MPa
Ultimate	25.3 t/unit	37.0 t/unit	32.0 t/unit
Electrical conduction	0	X	X
Durability	Poor durability	Approximately 100 years (corrosion resistance)	Approximately 100 years (corrosion resistance)
Constructability	<ul style="list-style-type: none"> • The heavy weight of steel Rock bolt can cause fatal accidents during the operation • Two or more people are required to install the steel Rock bolt • Drop-out frequently occurs in the ceiling Rock bolt installation due to the heavy weight of the steel Rock bolt • A separate process is required for connecting the injection pipe • Difficulty in inserting the steel Rock bolt connected to the injection pipe Difficulty working in the water section 	<ul style="list-style-type: none"> • Lightweight (4kg/4m) for easy to handle • KEco solid Rock bolt can be installed by one person • A separate process is required for connecting the injection pipe • There is almost no dropout due to its own weight when working on the end of the ceiling • Easy to insert KEco solid Rock bolt compared to steel rebar • Difficulty working in the water section 	<ul style="list-style-type: none"> • Lightweight (4kg/4m) for easy to handle • KEco solid Rock bolt can be installed by one person • It can be injected through a hollow hole without connecting a separate injection tube • It is possible to shorten the construction time and to fill it by 100% • Excellent effect in the work of the water section
Stability	<ul style="list-style-type: none"> • Increased risk of using equipment when transporting with high weight (2 people can carry it) • Use of equipment when inserting steel Rock bolt (A number of safety accidents occur) 	<ul style="list-style-type: none"> • KEco solid Rock bolt can be installed by human power • Secure structural stability by using highstrength Rock bolt • It is a non-conductive product, it can be used safely even in high-moisture and highpressure sites 	<ul style="list-style-type: none"> • Reduced risk factors with lightweight materials and excellent workability • Stable excavation cycle management is possible by reducing worker fatigue and increasing work efficiency • Workers can check the mortar filling status by themselves • 100% filling possible (prevention of falling accidents) • Zero safety accidents by ensuring quality and minimizing risky work

KEco Rock bolt / Soil-Nail Standard Specification

Solid Type

Product Name	Outer Diameter(mm)	Tensile Strength(MPa)	Shear Strength(MPa)	Glass Fiber Content(%)
SS-25	25	850	≥150	≥75
SS-32	32	850	≥150	≥75

Hollow Type

Product Name	Outer Diameter(mm)	Inner Diameter(mm)	Tensile Strength(MPa)	Shear Strength(MPa)	Glass Fiber Content(%)
HS-25	25	12	850	≥150	≥75
HS-27	27	12	850	≥150	≥75
HS-32	32	15	850	≥150	≥75

KEco Rock bolt Case studies and Clients

KEco Rock bolt Case studies



Daegu Outskirts District 2



GTX-A construction area



Anheung-Banglim construction area



Osong Expressway Branch Line



Ansan-Buk Suwon district 1



Milyang-Ulsan district 4



KEco Rock bolt



KCMT, a leading company in the development and production of eco-friendly construction materials.

KEco Rock bolt Case studies and Clients

KEco Rock bolt Supply History

Client	Application	Delivery Month	Supplied products
Gyeonggi Transportation Corporation	Section 1 of the Dobongsan–Okjeong Metropolitan Railway	2024. 07 ~	HS27 Ø27mm
Korea Railway Corporation	Section 1 of the Dongtan–Indeokwon Double Track Railway	2024. 06 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 2 of the Sejong–Anseong Expressway	2024. 04 ~	HS27 Ø27mm
Korea Railway Corporation	Section 4 of Phase 2 of the Honam High-Speed Railway	2024. 04 ~	SS25 Ø25mm
Korea Railway Corporation	Sections 2 and 4 of the Gangneung–Jejin Line Railway	2024. 01 ~	SS25 Ø25mm
Gyeongsangnam-do Provincial Government	Site Development Work for the Yangchon–Yongjeong District General Industrial Complex	2023. 11 ~	HS27 Ø27mm
Incheon Urban Railway Corporation	Sections 1 and 4 of the Seoul Subway Line 7 Extension to Cheongna International City	2023. 10 ~	SS25 Ø25mm
Saudi Arabia	Neom Project	2023. 09 ~	SS32 Ø32mm
Korea Expressway Corporation	Section 1 of the Yeongdong Line, Ansan–Buk Suwon	2023. 09 ~	HS27 Ø27mm
Korea Railway Corporation	Double Track Railway Section of the Indeokwon–Dongtan Line	2023. 08 ~	SS25 Ø25mm
Korea Railway Corporation	Section 7 of the Chuncheon–Sokcho Railway Construction	2023. 08 ~	SS25 Ø25mm
Nexttrain Co., Ltd	Private Investment Project Section 5-1 of the Shin Ansan Line Double Track Railway	2023. 08 ~	HS27 Ø27mm
Incheon Urban Railway Corporation	Section 5 of the Seoul Subway Line 7 Extension to Cheongna International City	2023. 07 ~	HS27 Ø27mm
korea national railway	Section 7 of the Sejong–Anseong Expressway	2023. 07 ~	HS27 Ø27mm
Incheon Urban Railway Corporation	Section 6 of the Seoul Subway Line 7 Extension to Cheongna International City	2023. 07 ~	HS27 Ø27mm
Korea Railway Corporation	Sections 5 and 7 of Phase 2 of the Honam High-Speed Railway	2023. 05 ~	SS25 Ø25mm
Siheung, Gyeonggi-do	Siheung Multi-Techno Valley (Siheung MTV)	2023. 05 ~	HS27 Ø27mm
Hwaseong, Gyeonggi-do	Dongha–Oeil Road Widening Construction	2023. 05 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 1 of the Hamyang–Changnyeong Expressway	2023. 03 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 2 of the Inju–Eomchi Expressway	2023. 03 ~	HS27 Ø27mm
Nexttrain Co., Ltd	Private Investment Project Section 3-1 of the Shin Ansan Line Double Track Railway	2023. 02 ~	SS25 Ø25mm
Wonju Regional Land Management Office	Section 1 of National Route 42, Anhong–Bangnim	2023. 01 ~	SS25 Ø25mm
Korea Rail Network Authority (KRNA)	Section 1 of the Indeokwon–Dongtan Double Track Railway	2023. 01 ~	SS25 Ø25mm
Gwangju Metropolitan City Urban Railway Corporation	Section 5 of Phase 1 of the Gwangju Metro Line 2	2023. 01 ~	SS25 Ø25mm
Korea Expressway Corporation	Expressway Route 292, Osong Branch	2022. 12 ~	HS27 Ø27mm
Nexttrain Co., Ltd	Private Investment Project Section 5-1 of the Shin Ansan Line Double Track Railway	2022. 12 ~	SS25 Ø25mm
Korea Expressway Corporation	Expansion of the Cheonan Junction Access	2022. 11 ~	SS25 Ø25mm
Korea Expressway Corporation	Sections 1 and 2 of the Inju–Eomchi Expressway	2022. 08 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 4 of the Hamyang–Changnyeong Expressway	2022. 10 ~	HS27 Ø27mm
Korea Rail Network Authority (KRNA)	Section 5 of Phase 2 of the Honam High-Speed Railway	2022. 09 ~	SS25 Ø25mm
Gangneung City, Gangwon Province	Construction of Park Facilities at Gangneung Traffic Park	2022. 06 ~	SS25 Ø25mm
Nexttrain Co., Ltd	Private Investment Project Sections 4-2 and 5-2 of the Shin Ansan Line Double Track Railway	2022. 06 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 9 of the Sejong–Anseong Expressway	2022. 05 ~	HS27 Ø27mm
Incheon Metropolitan City Urban Railway Construction Headquarters	Section 1 of Line 1, Phase 2 of the Incheon Metropolitan Subway	2022. 05 ~	SS25 Ø25mm
Korea Expressway Corporation	Sections 2 and 3 of the Yangpyeong–Icheon Expressway	2022. 04 ~	HS27 Ø27mm
Nexttrain Co., Ltd	Private Investment Project Section 2 of the Shin Ansan Line Double Track Railway	2022. 04 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 5 of the Saemangeum–Jeonju Expressway	2022. 04 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 2 of the Gimpo–Paju Expressway	2022. 03 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 2 of the Hamyang–Changnyeong Expressway	2022. 03 ~	HS27 Ø27mm
Busan Transportation Corporation	Section 1 of the Yangsan Line (Nopo–Bukjeong)	2022. 03 ~	SS25 Ø25mm
Busan Metropolitan City Construction Headquarters	Section 2 of the Mandeok–Centum Urban Expressway	2022. 03 ~	HS27 Ø27mm
Jeollanam-do Provincial Government	Gangjin Kkachisan Naejae Tunnel	2022. 02 ~	HS27 Ø27mm
SG Rail Co., Ltd	Section 4 of the GTX-A Line	2022. 01 ~	SS25 Ø25mm
Nexttrain Co., Ltd	Private Investment Project Section 1-1 of the Shin Ansan Line Double Track Railway	2021. 12 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 5 of the Sejong–Anseong Expressway	2021. 12 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 6 of the Hamyang–Changnyeong Expressway	2021. 10 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 3 of the Pohang–Yeongdeok Expressway	2021. 10 ~	HS27 Ø27mm
Nexttrain Co., Ltd	Private Investment Project Section 1-2 of the Shin Ansan Line Double Track Railway	2021. 10 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 7 of the Saemangeum–Jeonju Expressway	2021. 09 ~	HS27 Ø27mm
Lotte Ulsan Development Co., Ltd.	Infrastructure Maintenance Around the Ulsan Station Complex Transfer Center	2021. 09 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 4 of the Anseong–Seongnam Expressway	2021. 08 ~	HS27 Ø27mm
Busan Metropolitan City Construction Headquarters	Section 1-1 of the Mandeok–Centum Urban Expressway	2021. 08 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 1 of the Hamyang–Changnyeong Expressway	2021. 06 ~	HS27 Ø27mm
SG Rail Co., Ltd	Section 6 of the GTX-A Line (Metropolitan Rapid Transit)	2021. 06 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 4 of the Hamyang–Changnyeong Expressway	2021. 05 ~	HS27 Ø27mm
SG Rail Co., Ltd	Section 2 of the GTX-A Line (Metropolitan Rapid Transit)	2021. 04 ~	SS25 Ø25mm
Korea Expressway Corporation	Sections 1 and 3 of the Third Dupocheon Expressway	2021. 04 ~	SS25 Ø25mm

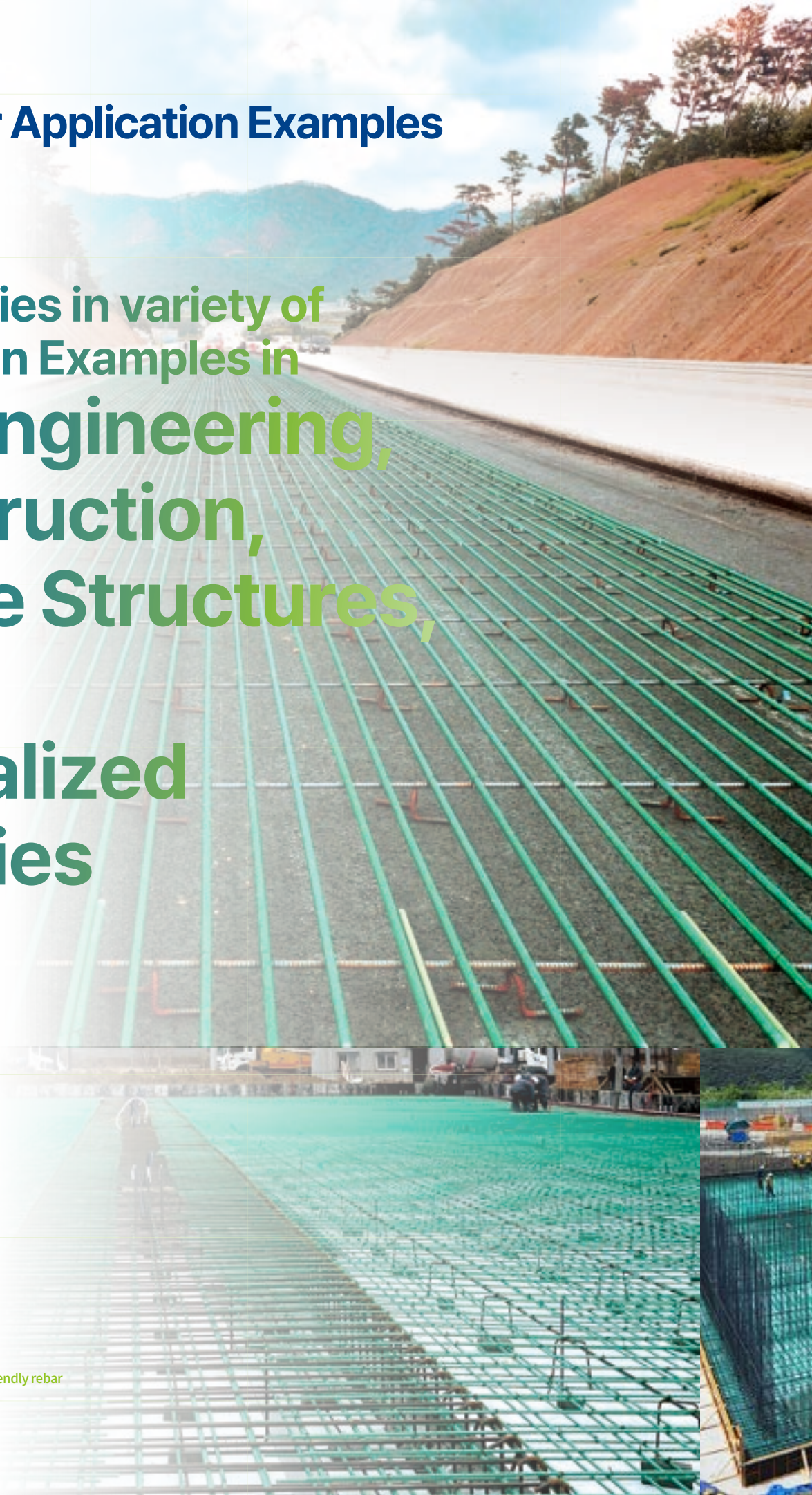
Client	Application	Delivery Month	Supplied products
Korea Expressway Corporation	Section 7 of the Anseong-Seongnam Expressway	2021. 03 ~	SS25 Ø25mm
Busan Regional Aviation Administration	Ulleung Airport Construction Project	2021. 03 ~	SS25 Ø25mm
SG Rail Co., Ltd.	Sections A1 and 6 of the GTX-A Line (Metropolitan Rapid Transit)	2021. 02 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 7 of the Anseong-Seongnam Expressway	2021. 02 ~	SS25 Ø25mm
SG Rail Co., Ltd.	Section 1 of the GTX-A Line (Metropolitan Rapid Transit)	2021. 01 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 2 of the GTX-A Line (Metropolitan Rapid Transit)	2020. 12 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 2 of the Hamyang-Hapcheon Expressway	2020. 11 ~	HS27 Ø27mm
Busan Transportation Corporation	Section 1 of the Busan Metro Yangsan Line (Nopo-Bukjeong)	2020. 11 ~	SS25 Ø25mm
SG Rail Co., Ltd.	Section 2 of the GTX-A Line (Metropolitan Rapid Transit)	2020. 10 ~	SS25 Ø25mm
Seoul Metropolitan City Infrastructure Headquarters	Section 1 of the Sinlim-Bongcheon Tunnel	2020. 10 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 11 of the Hamyang-Changnyeong Expressway	2020. 10 ~	SS25 Ø25mm
Gangneung Eco Power Co., Ltd.	Ground Reinforcement Work at Gangneung Anin Thermal Power Plant	2020. 10 ~	HS27 Ø27mm
Yeongwol County, Gangwon Province	Alignment Improvement Work on National Route 9 (Bundeokjae Tunnel)	2020. 07 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 2 of the Paju-Yangju Expressway	2020. 07 ~	SS25 Ø25mm
SG Rail Co., Ltd.	Sections 3, 4, and 5 of the GTX-A Line (Metropolitan Rapid Transit)	2020. 07 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 9 of the Anseong-Seongnam Expressway	2020. 07 ~	HS27 Ø27mm
Gangneung Eco Power Co., Ltd.	Ground Reinforcement Work at Gangneung Anin Thermal Power Plant	2020. 07 ~	HS27 Ø27mm
Korea Expressway Corporation	Section 9 of the Hamyang-Changnyeong Expressway	2020. 03 ~	SS25 Ø25mm
Korea Expressway Corporation	Sections 6, 7, and 8 of the Saemangeum-Jeonju Expressway	2019. 12 ~	HS27 Ø27mm
Korea Rail Network Authority / Gyeonggi Province	Byeollae Line (Extension of Line 8)	2019. 12 ~	GFRP RockBolt
Ministry of the Interior and Safety	National Information Resources Management Agency Gongju Center	2019. 09 ~	SS25 Ø25mm
Korea Southern Power Co., Ltd.	South Jeju Combined Thermal Power Plant	2019. 08 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 3 of the Hamyang-Changnyeong Expressway	2019. 04 ~	SS25 Ø25mm
Busan Development Institute	International Industrial Logistics City (Phase 1-2)	2019. 01 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 13 of the Anseong-Guri Expressway	2018. 12 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 6 of the Miryang-Ulsan Expressway	2018. 11 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 2 of the Paju-Yangju Expressway	2018. 10 ~	SS25 Ø25mm
Daejeon Regional Land Management Office	Construction of the North-II and South-II National Road	2018. 09 ~	SS25 Ø25mm
Busan Regional Land Management Office	Changwon City Bypass Road Construction (Second Anmin Tunnel)	2018. 09 ~	SS25 Ø25mm
Busan Regional Land Management Office	Section 5 of the Sasang-Hadan Metro Line	2018. 08 ~	HS25 Ø25mm
West Metropolitan Railway Co., Ltd.	Section 2 of the Daegok-Sosa Double Track Railway	2018. 08 ~	SS25 Ø25mm
Seoul Regional Land Management Office	Sections 1-2 of the Icheon-Osan Expressway	2018. 07 ~	SS25 Ø25mm
Busan Regional Land Management Office	Construction of the Goseong-Tongyeong National Road	2018. 05 ~	SS25 Ø25mm
Korea Expressway Corporation	Sections 11-111-2 of the Anseong-Guri Expressway	2018. 03 ~	SS25 Ø25mm
Seoul Regional Land Management Office	Section 1-1 of the Icheon-Osan Expressway	2018. 02 ~	SS25 Ø25mm
Gyeonggi Province	Section 5 of the Seoul Subway Line 5 Extension to Hanam	2017. 11 ~	SS25 Ø25mm
West Seoul Urban Expressway Co., Ltd.	Section 2-1 of the Western Arterial Underground Road	2017. 11 ~	SS25 Ø25mm
Korea Rail Network Authority / Gyeonggi Province	Section 4 of the Seoul Subway Line 8 Byeollae Line	2017. 09 ~	SS25 Ø25mm
Korea Railway Corporation	Section 1 of the Seoul Subway Line 4 Extension to Jinjeop	2017. 09 ~	SS25 Ø25mm
Busan Regional Land Management Office	Construction Section of the Seomyeon-Geunnam National Road	2017. 07 ~	SS25 Ø25mm
Busan Regional Land Management Office	Section 3 of the Geoje-Masan National Road Construction	2017. 06 ~	SS25 Ø25mm
Seoul Metropolitan City Infrastructure Headquarters	Section 2 of the Sinlim-Bongcheon Tunnel	2017. 02 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 2 of the Daegu Outer Ring Expressway	2016. 12 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 2 of the Hwado-Yangpyeong Expressway	2016. 09 ~	SS25 Ø25mm
Wonju Regional Land Management Office	Construction of the Dogye-Sangi National Road	2016. 08 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 2 of the Busan Outer Ring Expressway	2016. 08 ~	SS25 Ø25mm
Smart Rail Co., Ltd.	Section 1 of the Bujeon-Masan Double Track Railway	2016. 08 ~	SS25 Ø25mm
Korea Expressway Corporation	Sections 2, 3, 4, 5, 6, and 9 of the Miryang-Ulsan Expressway	2016. 08 ~	SS25 Ø25mm
Incheon Metropolitan City Subway Construction Headquarters	Section 2 of the Seoul Subway Line 7 Extension to Seongnam	2016. 07 ~	SS25 Ø25mm
Smart Rail Co., Ltd.	Section 1 of the Bujeon-Masan Double Track Railway	2016. 07 ~	SS25 Ø25mm
Korea Railway Corporation	Sections 1 and 3 of the Gimpo Metro Line	2015. 09 ~	SS25 Ø25mm
Korea Expressway Corporation	Section 4 of the Busan Outer Ring Expressway	2015. 06 ~	SS25 Ø25mm

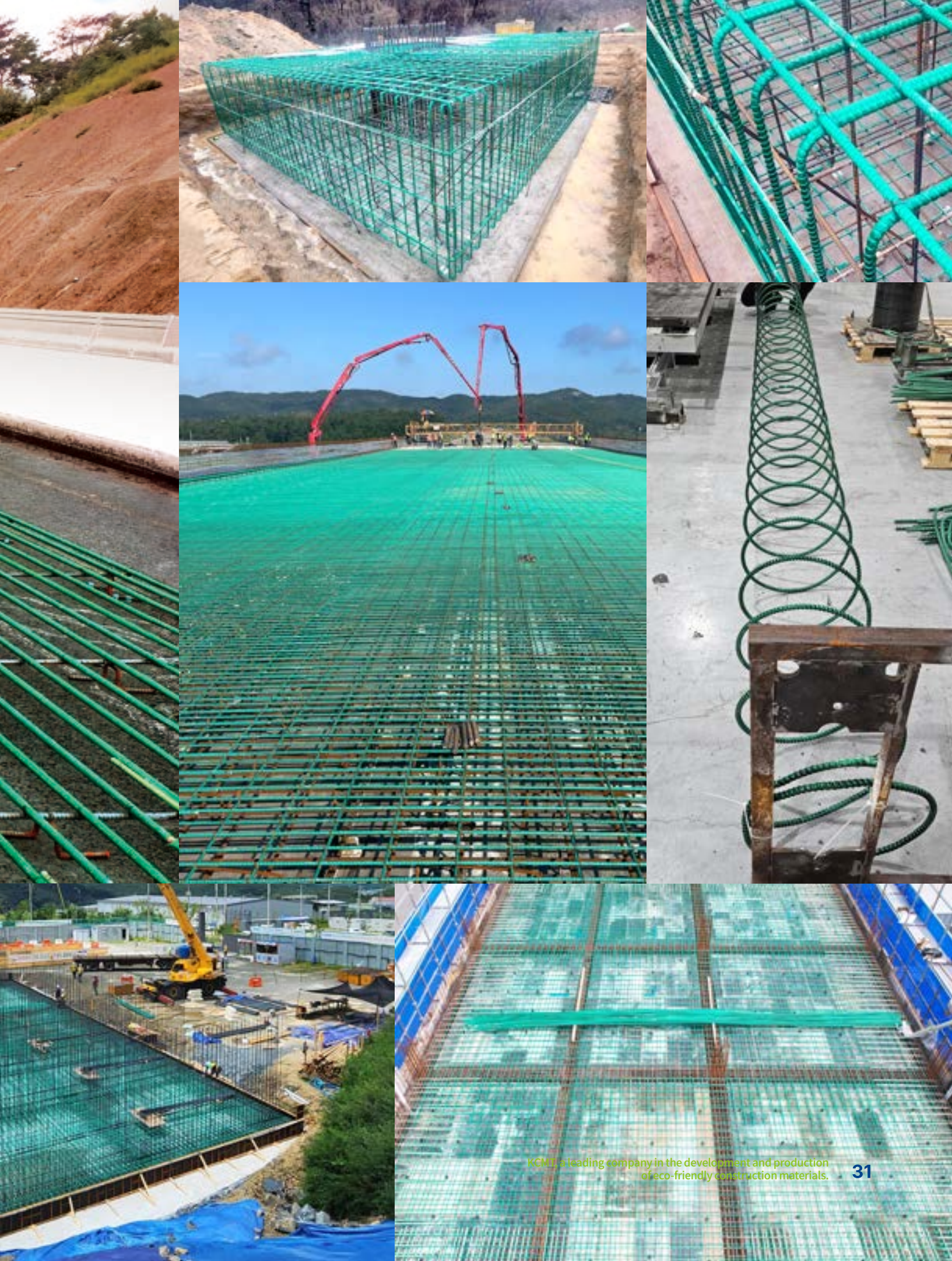
* Detailed Information Available Upon Request for Delivery Performance Certificate

5. KEco Bar Application Examples

Case studies in variety of
Application Examples in
**Civil Engineering,
Construction,
Marine Structures,
and
Specialized
Facilities**

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-
-





6. KEco Bar Certificates and patents

Certificates

Total of 11 Patents (2 Exclusive Licenses - Subsidiary/Resin Manufacturing Companies)



	Category	Registration Number	Name
1	Registration	10-2301724	Method for Producing Environmentally Friendly Drawing Molding Ball-Saturated Polyester Resin Using Recycled Polyethylene Terephthalate
2	Exclusive License	10-2455276	Method for Producing Environmentally Friendly Acrylic Monomer Epoxy Resin-Modified Vinyl Ester Rsin Using Glycol-Modified Polyethylene Terephthalate
3	Exclusive License	10-2545381	Method for Producing Environmentally Friendly Corrosion-Resistant Drawing Molding Vinyl Ester Resin Using Recycled Polyethylene Terephthalate Flakes
4	Application	10-2023-0108978	Manufacturing Equipment for Glass Fiber Reinforced Rebar with Enhanced Bond Strength
5	Application	10-2023-0108985	Manufacturing Equipment for Glass Fiber Reinforced Rebar with Enhanced Bond Strength by Controlling Impregnation Direction
6	Application	10-2023-0108982	Manufacturing Equipment for Glass Fiber Reinforced Rebar That Ensures Stable Transfer While Preventing Damage to the Rod
7	Application	10-2023-0046209	Tensile Testing Equipment for GFRP Rebar
8	Application	10-2024-0009750	Reinforced Fiber Composite for Rebar Containing Glycol Oligomers from Recycled PET

- ✓ KEco Bar, the Only GFRP Rebar in Korea Selected as an Excellent and Innovative Product by the Public Procurement Service
- ✓ Private Contracts Without Amount Restrictions Under the National Contract Act and Local Contract Act

Certification Status



	Item	Cert no.	Certificate Authorities	Certification
Domestic	K-Mark	PF12024-016	Korea Institute of Industrial Technology	GFRP Rebar
	Q-Mark	V87-2024-001	Korea Testing Laboratory (KTL) for Mechanical, Electrical, and Electronic Testing	GFRP Rebar
	Construction Recycled Material	KOREC 23-001	Korea Society of Construction and Recycling Resources (KSCRR)	Eco-friendly GFRP Rebar Product Made from Recycled PET Bottles
	Green Technology Product Certification	No. GT-24-01903 No. GTP-24-04096	Ministry of Land, Infrastructure and Transport (MOLIT)	GFRP Rebar Manufacturing Technology for Strengthened Material Properties Using Recycled PET Resin (Classification Number: T100503) for Concrete Structures
	Occupational Health and Safety Management System (OHSMS), Quality Management System (QMS), Environmental Management System (EMS)	ISO 45001:2018 ISO 14001:2015 ISO 9001:2015	Ministry of Land, Infrastructure and Transport (MOLIT)	Certification Scope: Design and Manufacturing of GFRP Rock Bolts, GFRP Rebar, and GFRP Mesh
	Three Types of Environmental Labels	No. 2024-202 No. 2024-203 No. 2024-204	Korea Environmental Industry & Technology Institute (KEITI)	Product : Glass Fiber Reinforced Rebar, Product Name : KEco Rebar Product : Rock bolts and Components, Product Name : KEco Rock bolt (Hollow) Product : Rock bolts and Components, Product Name : KEco Rock bolt (Solid)
	Designated as an Innovative Product	No. 2024-162	Public Procurement Servi	Eco-friendly GFRP Rebar Made from Recycled PET Bottles)
	Designated as an Excellent Product	2024137	Public Procurement Servi	GFRP Rebar

7. Overseas Business

Overseas Contact Countries

- Indonesia
- Philippines
- Qatar
- China
- Germany
- India
- Nigeria
- Tanzania
- Vietnam
- Saudi Arabia
- USA
- Panama
- UAE
- Ukraine
- Thailand
- Cambodia
- Bangladesh
- Kazakhstan

Overseas Agent

- Singapore
- Germany
- Tanzania



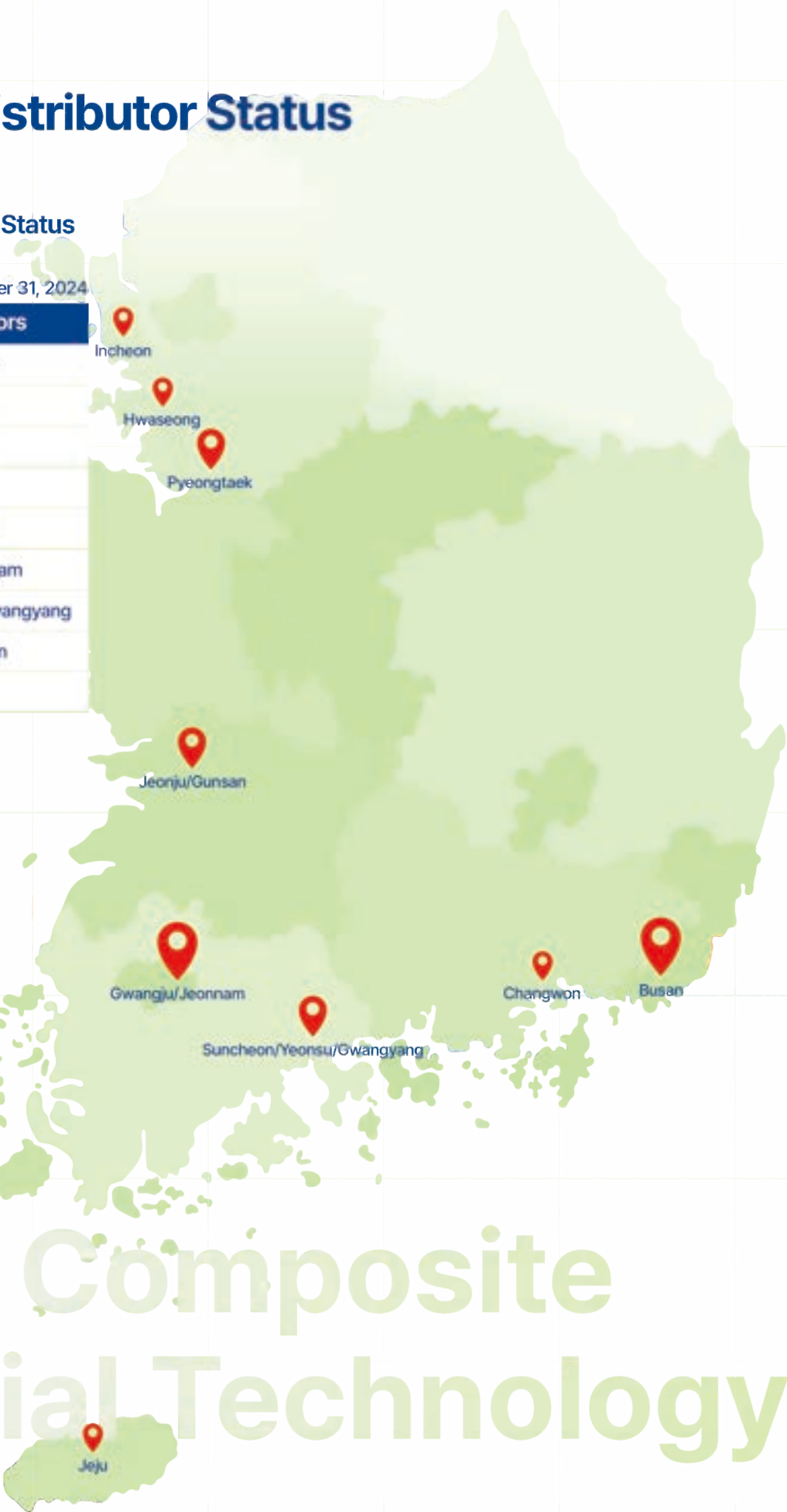


8. Domestic Distributor Status

Regional Official Dealership Status

As of October 31, 2024

Official Regional Distributors	
Gyeonggi Region	Pyeongtaek
	Incheon
	Hwaseong
Gyeongsang Region	Busan
	Changwon
Jeolla Region	Gwangju/Jeonnam
	Suncheon/Yeonsu/Gwangyang
	Jeonju/Gunsan
	Jeju



Korea Composite Material Technology

Korea Composite Material Technology

Publication Date : April 25, 2025

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KCMIT
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material development and manufacturing



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