HI-TECH ENG

Engineering & Procurement & Construction Company









About HI-TECH ENG Introduction

Company Name Hi-Tech Engineering Co.,Ltd.

CEO Jang Yung

Address 366, Yeosusandan 1-ro, Yeosu-si, Jeollanam-do, Republic of KOREA

Established Date Dec. 1995

Company Type Middle Market Enterprise (Mid-sized Company)

Business Fields Engineering and integrated construction of the industrial plant facilities

Capital KRW 2.5 billion

[Based on 2022 settlement]

Revenue
KRW 196.5 billion
US \$ 164 million

Credit rating

BBB-

Cash flow rating

Α

E.S.G rating

ESG-4 (Excellent)

Mission and Vision

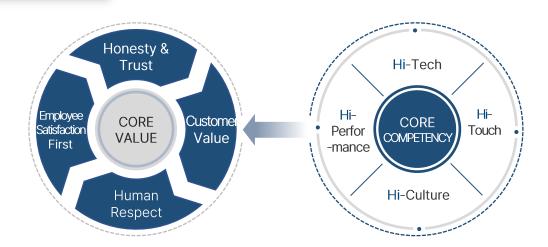
Hi-Tech Engineering strives to be a creative partner to provide optimal engineering solutions to achieve its vision of a $^{\Gamma}$ More Sustainable Engineering Company $_{\rm J}$.

Mission

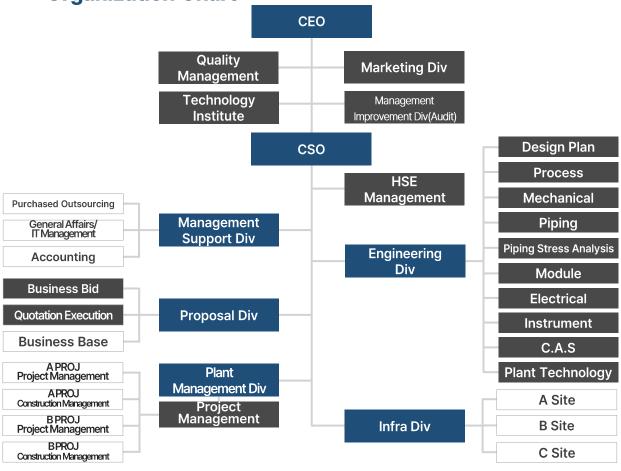
Creative Partner to Provide
The Optimal Engineering Solution

Vision

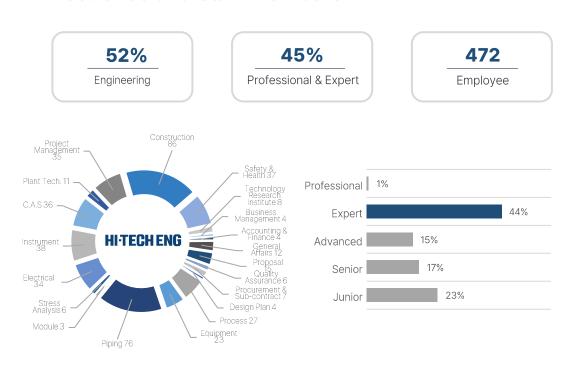
More Sustainable Engineering Company



Organization Chart



Executives and staff members



2015

About HI-TECH ENG **History**

2023/2013

2023	Introduced 3D design system (S3D / Intergraph Smart 3D)
	Received citation of minister from Minister of Health and Welfare
	Received citation of minister from Minister of Strategy and Finance
2022	Received a commendation from the head of the National Fire Agency
	Received citation of minister from Ministry of Trade, Industry and Energy
	Environmental Social Governance rating: ESG-4 Excellence Certification
2021	Certified as Mid-sized Company
2020	Registered construction for civil
	Registered the specialized construction business for atmospheric environment
	Introduced 3D design system (AVEVA E3D Design)
2019	Certified as Family-friendly company
	Registered safety diagnosis specialized company (Architecture)
	Registered construction technology services business
2017	Certified as company for work and training parallel system
2016	Received citation of minister from Ministry of Trade, Industry and Energy
	Registered Public survey business



Registered specialized organization for OCA report



2012/1995

1995

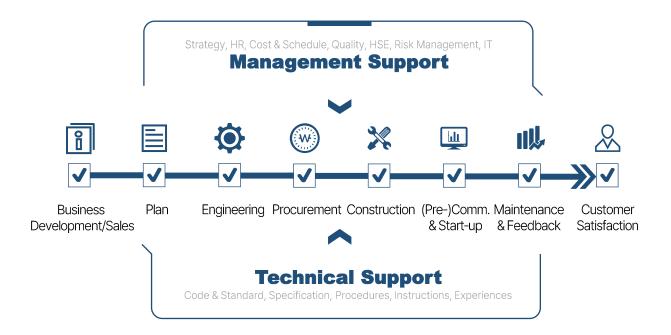
2012	Registered overseas construction business (Industrial environment facility, Electricity)
	Certified for ISO 45001 Health and safety management form DNV
	Certified for ISO 14001 Environmental management from DNV
	Established Ulsan Office
2011	Registered the construction business for specialized fire fighting facility
	Registered the construction business for industrial environment facility
2010	Registered the construction business for electric
2008	Registered Energy service company(ESCO)
2007	Moved the head office
2005	Won the minister award from Ministry of Knowledge Economy
	Established Seoul office
	Established and approved Technology institution
	Introduced 3D laser scan(Z+F IMAGER) system
	Established Daesan office
2004	Introduced 3D design system (PDS)
	Registered design business for fire fighting facility(Mech. & Elec.)
2003	Registered integrated construction supervision business(Elec. power facilities)
2002	Registered engineering service provider
2001	Introduced 3D design system from AVEVA (PDMS)
2000	Certified for ISO 9001 Quality management from Orion registrar inc., USA

Established Hi-Tech Engineering Co., Ltd.





About HI-TECH ENG Scope of Services



ESTIMATION

FEED & Case study
Cost estimation of total construction

BASIC ENGINEERING

License Documentation Development Basic design & Process development Process simulation with column rating & Design (ASPEN PLUS, PRO-II)

Process dynamic analysis (ASPEN, HYSYS)
Equipment sizing & Data sheets
Heat exchanger rating & Design (HTRI, HTFS)
Hydraulic calculation & Flare network analysis
(FLARNET, IN-HOUSE PROGRAM)
Instrument sizing & Data sheets (INSTRUCALC)
SIS Analysis (FAULT TREE+)

DETAIL ENGINEERING

Equipment selection
Calculation & Engineering drawing
3D Modeling
Piping construction drawing
Electrical construction drawing
Instrument construction drawing
Civil and architectural (Incl. Facilities) construction drawing
Other special construction drawing & Document related
As-built drawing for various construction

PROCUREMENT & SUPPORT

Vendor recommendation

(Stationary/Rotationary/Piping/Instrument/Electric part)

RFQ (Request For Quotation)

TBE (Technical Bid Evaluation)

CBE (Commercial Bid Evaluation)

Purchase Order

Vendor shop inspection

Delivery expediting and control

CONSTRUCTION

Field construction management
Construction supervision
Schedule control and reporting
Quality control and reporting
Field inspection and reporting
Cost control and reporting
Safety management
Environment management
Field Engineering service

PRE-COMMISSIONING

Pre-commissioning/Commissioning
Performance test & Guarantee operation Assist



About HI-TECH ENG **Sustainable Management**

ESG Management system

Environmental Environmental Environmental Clima Environmental Wast Reso Envir Eco-

Environmental

Climate Change/Carbon Emissions Environmental Pollution/ Waste/Toxic Substances Resource virtuous cycle/Renewable energy Environmental Certification/ Eco-friendly Product

Governance

Transparent Management Ethical Management Risk Management Communication Governance

Employment Equality/ Capacity Development/ Human Rights Management/ Employee Health and Safety/

Social

Employee Health and Safety/ Community Relations/ Fair Communication/Diversity/ Inclusion of corporate culture

ISO Management system

Customer Satisfaction







Quality Management ISO 9001



Achieve quality goals for projects and services that realize customer satisfaction

Healthy & Safety Management ISO 45001

MANAGEMENT SYSTEM
CERTIFICATE

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HI-TECH ENGINEERING CO., LTD.

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HI-TECH ENGINEERING CO., LTD.

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Achieving an accident-free workplace by establishing an autonomous safety and health management system

Environmental Management ISO 14001



Eco-friendly management activities through the establishment of an autonomous environmental management system

About HI-TECH ENG **Equipment & Program**

Equipment

3D Scanner	IMAGER-5016	IMAGER-5010	
Introduction period / Quantity	2020년, 2022년 / 2대	2010년, 2014년 / 2대	
Speed	Max. 1.094 million pixel/sec.	Max. 1.016 million pixel/sec.	
Distance / linear Error	365m / ≤ 1 mm	187.3m / ≤ 1 mm	
Manufacturing company	Zoller+Fröhlich(Z+F)	Zoller+Fröhlich(Z+F)	

Program (Package)

	5 /	
	Project Management	Mech. & Piping Stress Analysis
	MS-Project (for Schedule)	COMPRESS
	Primavera P6 (for Schedule)	CAESAR II
	Flow (Project Cooperation S/W)	NozzlePRO
	Process	Electrical & Instrumentation
	aspenONE Engineering	Power*Tools
	AVEVA PRO/II	ETAP
	AVEVA P&ID	AVEVA Electrical
	Intergraph Smart P&ID	AVEVA Instrumentation
	AutoCAD P&ID	Intergraph Smart Electrical
		Intergraph Smart Instrumentation
	3D Modeling	Piping
	AVEVA E3D Design / PDMS / Review	J-Sketch / J-Support
	Intergraph Smart 3D / PDS / Review	Isogen (for PDS)
	Autodesk AEC (Architecture Engineering & Cons	struction Collection) (with Revit)(for BIM)
	Autodesk PDMC (Product Design Manufacturing	g Collection) (with Inventor)
	Civil & Structure Analysis	
Ī	MIDAS Gen MODS	Tekla Structures (3D Modeling)
	MIDAS Plant	eSDI (enhanced Structure Design Integration)
	STAAD.Pro	SketchUp (3D Modeling)
	AFES (For Foundation)	Enscape (3D Modeling)

Program (In-House)

Others

PEDAS-Foundation

Consequence Analysis

Weldy (Welding Map / Weld Data Management)

Engineering	Electrical & Instrumentation
AutoCAD Plug-in	Power*Tools
Navisworks Plug-in	ETAP
HI-Mechanical	AVEVA Electrical
HI-Instrument	AVEVA Instrumentation
HI-Process	Intergraph Smart Electrical
PDMS Control System	Intergraph Smart Instrumentation
Piping Design Management System	

PWIM (Piping Work Inspection Management)

About HI-TECH ENG License/Certificate/Patent

License

License	Field	Registered date
Design	Engineering (Chemical plant, HVAC & Plumbing, Structure, Electric facilities, Electric & Electronic Applications, Communication)	Jan , 2002
	Fire fighting facilities (Mechanical, electrical)	Mar , 2010
	Power facility professional (type 1)	Nov, 2013
	Offsite Consequence Analysis company	Apr, 2015
	Safety diagnosis specialized company (Architecture)	Dec , 2019
Survey	Public	Oct, 2016
Supervision	Construction technical service (Design & project management - general)	Jul, 2019
	Integrated(Electrical power facility)	May , 2003
Integrated construction	Industrial, environmental facility	Apr, 2011
	Architecture	Jun, 2013
	Civil	Jun, 2020
Specialized construction	Mechanical facility	Oct, 2014
	Atmospheric environment specialized	Mar, 2020
Overseas construction	Industrial, Environmental facilities	Oct, 2012
	Electricity	Oct, 2012
Others construction	Electricity construction	Sep , 2010
	Fire fighting facilities construction (Professional)	Apr, 2011
	Energy Service Company (ESCO)	Feb, 2008
	Hydrogen product manufacturing license	Jul, 2023

Certificate

Certificate	Standard	Registered date	
Quality Management system	Quality Management system ISO 9001:2015		
Health & Safety Management system	ISO 45001:2018	Mar, 2012	
Environmental Management system	ISO 14001:2015	Mar, 2012	
Institute of Technology	Jun, 2005		
Work and training parallel system	Jan , 2017		
Family-Friendly Company		Dec, 2019	
Middle Market Enterprise (Mid-sized Co	Apr, 2021		
Hydrogen Specialized Enterprise		Dec, 2023	

Patent

Application no.	Designation	Registered date
10-1638424	Method and system for managing ADD-IN program and PDMS database	May, 2015
10-1716717	Robot for welding defect inspection of oil storage tank using EMAT	Sep, 2015
10-1847946	Human resources management system and method specific project	Oct, 2016



About HI-TECH ENG

Putting customer needs and safety first

Modularization

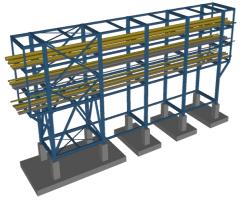
Modularization minimizes the installation space by turning the plant into unit parts in the form of a mixed structure (structure, pressure vessel, piping, electrical room, etc.) It is a construction technology to reduce the overall construction period and cost by transporting.

Unlike the existing stick-built method, its method applies for the purpose of reducing on-site work, and it can secure schedule/cost/quality when there is on-site limitation, minimizing the environmental impact of the construction site and shortening the construction period. In addition, it is possible to secure the stability of work, and expect effects such as productivity improvement and cost reduction.

In particular, in order to prevent various safety accidents occurring at the construction site, we do our best to prevent serious accidents at the site by minimizing on-site work by manufacturing modules and skids to extent possible in a manufacturing factory with safe working conditions.



2/ Pipe Rack Module



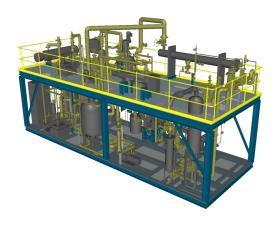


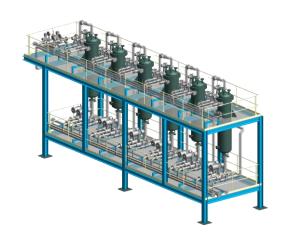
3/ Structure Module





4/ Skid Type Module





${\color{red}5}/\,\text{Small Size Skid \& Spools}$







PSV Skid



Sample Pot Skid



Control valve system



About HI-TECH ENG

Realizing the highest level of perfection

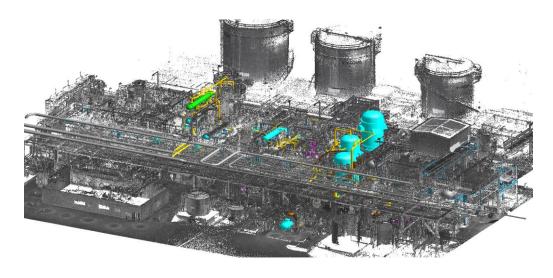
3D Laser Scan & Revamping Project

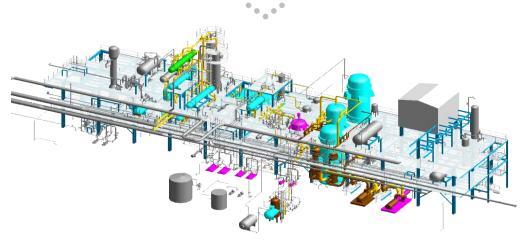
Carrying out projects necessary for process improvement and capacity increase of existing plants faces more difficulties and problems than building a new plant.

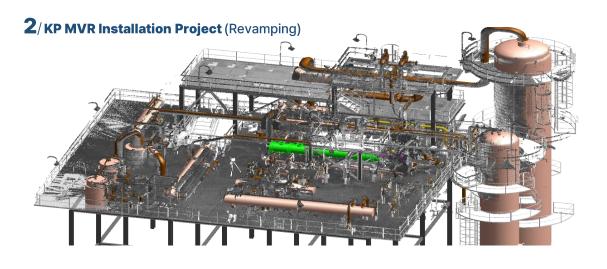
There are various facilities in the field that are not expressed in the drawings, and the drawings you have show a lot of errors with the site, and there are cases where there are no drawings.

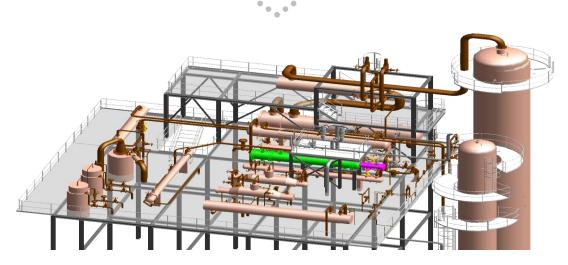
Hi-Tech Engineering has been implementing 3D Laser Scan and 3D Modeling since 2005 to solve these problems, applying a lot of experience and know-how required for the Revamping Project.

1/PB2 100,000MTA Plant (Revamping)

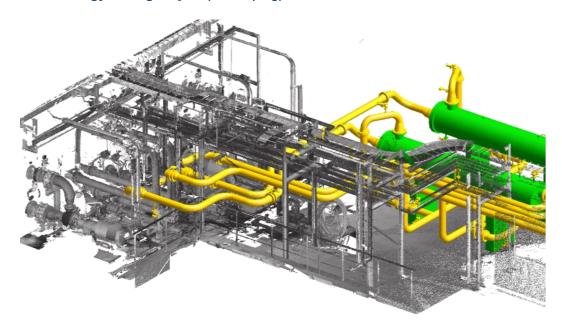








/ NCC Energy Saving Project (Revamping)





Business Portfolio

With 30 years of experience and technology

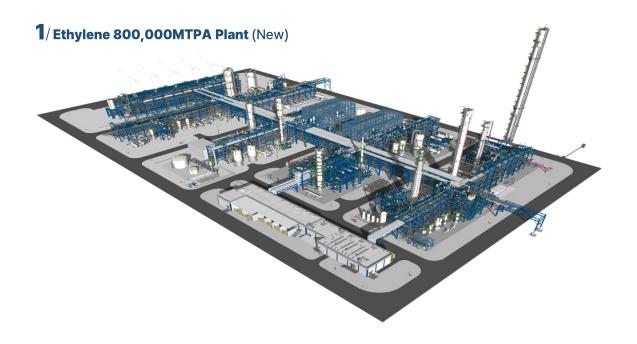
Refinery & Petrochemical Plant Business

Technical professionals with a wide range of design experience, and expertise in Oil & Gas, Refinery, Petrochemical and General chemical are essential in the Plant projects.

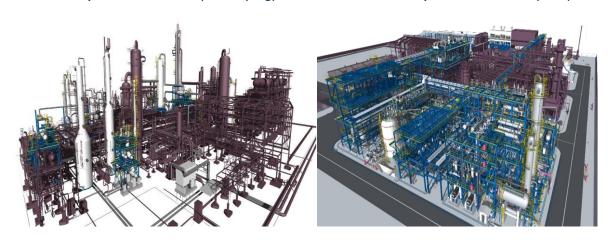
Hi-Tech Eng. performs many projects successfully in all of the areas such as project planning, feasibility study, detailed designing, procurement of equipment & materials, construction management and commissioning based on the accumulated experiences and technical powers in designing and procurement service areas with many of the typical local and overseas oil refining & petrochemical companies such as GS Caltex, LG Chemical, Kumho P&B Chemical, Kumho Mitsui Chemical, Kumho Petro Chemical, Kumho Poly Chemical, Lotte Chemical etc.

We promise that we will become a trustful global engineering company by strengthening the competitiveness of quality of refinery & petrochemical plant business, and advance capabilities to the overseas markets.



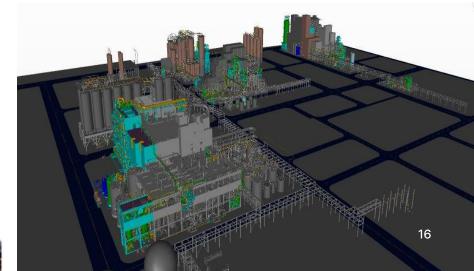


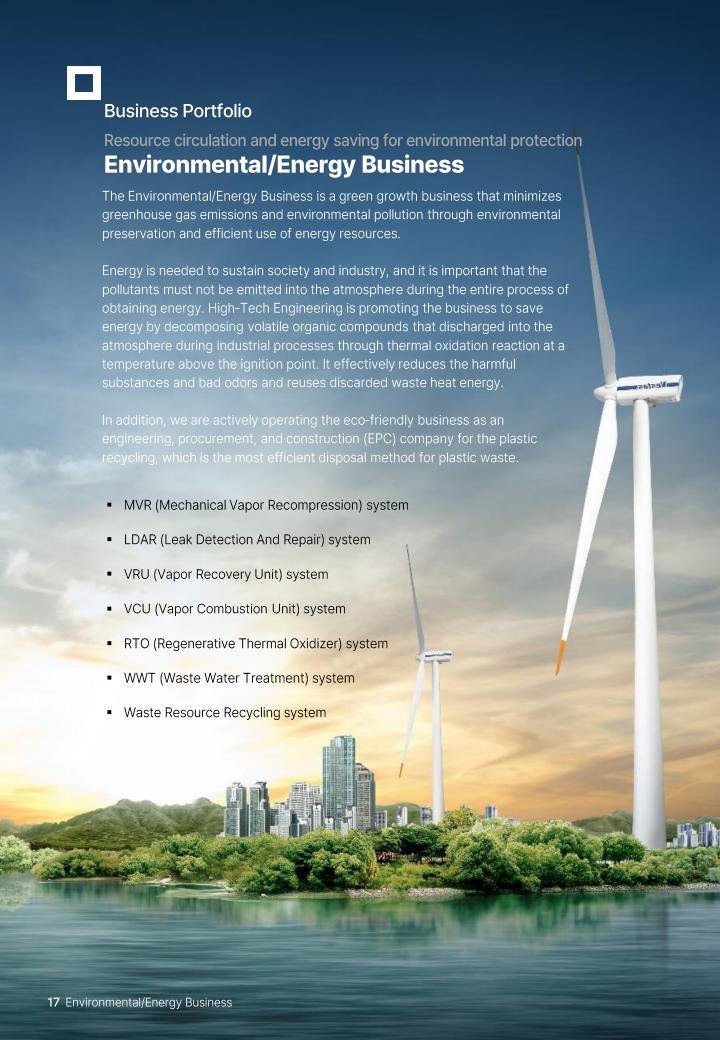
2/MEG 50,000MTPA Plant (Revamping) 3/EPM & EPDM 60,000MTPA Plant (New)



4/ ABS 65,000MTPA Plant (Revamping)







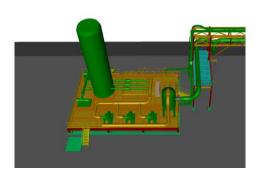
$1/\,\text{MVR System}$



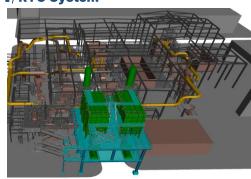
2/ VRU System



3/ vcu System



4/RTO System



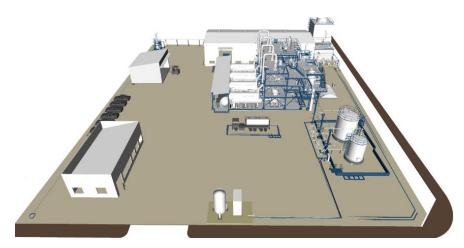
5/ **wwt System**Biological Treatment Method



Chemical Treatment Method



6/ Waste Resource Recycling system



Business Portfolio

Leading low-carbon green management

New & Renewable Energy Business

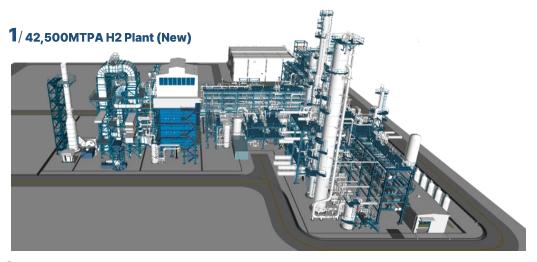
The new and renewable energy business refers to carbon neutrality and converts, stores, and utilizes hydrogen, solar power, photovoltaic power, bio, wind power, small hydro, and fuel cells.

In order to respond to global issues such as climate change and energy transition, Hi-Tech Engineering is carrying out projects of CCS system through national carbon reduction projects. We has taken the lead in operating a project to separate, compress, liquefy and distribute hydrogen, which is the core of future energy, by not only conducting a feasibility study on the installation of a hydrogen supply network but also building a hydrogen production base (56,000 Nm³/hr).

In addition, we have secured safety and efficiency by obtaining permission for [Hydrogen product manufacturing business] in accordance with the {Act on Hydrogen Economy Promotion and Hydrogen Safety Management} and are contributing to the revitalization of the hydrogen economy by being registered as a hydrogen specialized company.

- CCS(Carbon Capture Storage) system
- Rechargeable Battery system
- Hydrogen system
- Bio system

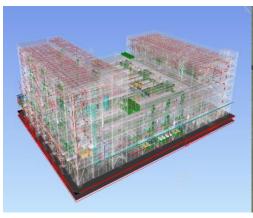




2/5 ton/day LH2 Plant (New)



3/ Lithium-ion Battery Production system (New)



4/ 0.5TPD Ammonia Hydrogenation Process (Revamping)



5/ ccs system





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No.	Client	Project	Period	Scope
269	KOLON INDUSTRY	BASIC DESIGN AND INVESTMENT COST CALCULATION SERVICE FOR PET CHEMICAL REGENERATION PLANT	Nov,2023~Mar,2024	E
268	S-OIL	DESIGN SERVICE FOR THE REVIEW OF DEMOLITION VOLUME OF OPERATION RESTING FACILITIES	Nov,2023~Dec,2023	Е
267	KUMHO POLY CHEM	PLANT 1 RTO-3 NEW INSTALLATION PROJECT	0ct,2023~Jul,2024	E/P/C
266	KUMHO POLY CHEM	PLANT 1 VCU NEW INSTALLATION PROJECT	0ct,2023~Jul,2024	E/P/C
265	GS E&C	EVERGREEN FEED & UTILITY PROJECT (PROCESS, PIPING, ELECTRICAL, INSTRUMENT, CIVIL DETAIL DESIGN)	Aug, 2023~Aug, 2025	Е
264	KUMHO P&B CHEM	CONSTRUCTION OF POWER SUPPLY FACILITIES IN PLANT 3	Aug,2023~Jun,2024	E/P/C
263	KUMHO POLY CHEM	PRE-ENGINEERING FOR INTRODUCTION OF LOW-PRESSURE TURBO CHILLER IN PLANT 1	Jul,2023~0ct,2023	E
262	DAIKIN ADVANCED MATERIALS	G2 GAS RECTIFIER EPC PROJECT	Jul,2023~Mar,2024	E/P/C
261	AZIKEL	12,000 BPSD HYDROSKIMMING REFINERY BAYELSA, NIGERIA - BDP AND UTILITIES	Jul,2023~Dec,2024	E/P
260	HANWHA AEROSPACE	AP SYNTHESIS NEW CONSTRUCTION PROCESS BASIC DESIGN	Jul,2023~Sep,2023	Е
259	KOREA JAESAE NEUNGWON	HIGH NICKEL CATHODE MATERIAL NEW LINE CONSTRUCTION PHASE 2 PROJECT	Jul,2023~Jun,2024	E
258	KUMHO MITSUI CHEM	12023 CURRENT INVESTMENT EPC CONSTRUCTION	Jun, 2023~Dec, 2023	E/P/C
257	GS E&C	LG CHEM AURORA PROJECT FEED & DETAILED DESIGN	Jun, 2023~Dec, 2023	Е
256	LG CHEM	PIPE RACK EXTENSION DESIGN AND APPROVAL FOR OUTSIDE PIPELINE	May,2023~Dec,2023	Е
255	BASF	6 INCH MULTI-PURPOSE PIPELINE TO JETTY	May,2023~Sep,2023	E
254	GS E&C	MFC DEBOTTLENECK/ENERGY SAVING PROJECT	May,2023~Mar,2025	E/P/C
254	JAEWON INDUSTRIAL	JAC20 REVAMPING PROJECT DETAIL DESIGN	May,2023~Jan,2024	E
253	GS E&C	EVERGREEN PROJECT DESIGN OUTSOURCING (PIPING, ELECTRICAL, INSTRUMENT, CIVIL)	Apr,2023~Aug,2023	Е
252	LG CHEM	BIO-PA PILOT CONSTRUCTION(ISBL)	Apr,2023~0ct,2023	P/C
251	AIR LIQUIDE KOREA	PROJECT TO CONNECT H2 LINE/CO LINE/VENT LINE TO KMCI BLOCK AT Y2 PLANT ISBL	Apr,2023~0ct,2023	E/P/C
250	KUMHO PETRO CHEM	I I-LINE SBS OFF GAS SYSTEM DESIGN AND APPROVAL	Mar,2023~Sep,2023	E
249	KUMHO POLY CHEM	FACTORY 2 RTO(80,000NM3/HR 2EA) NEW INSTALLATION PROJECT	Mar,2023~Dec,2023	E/P/C
248	LG CHEM	PILOT BUILDING OSBL AND ADJUSTMENT BUILDING INSTALLATION WORK	Mar,2023~Aug,2023	P/C
247	LOTTE CHEM	DETAILED DESIGN RELATED TO RELOCATION OF H-WWT1 WASTEWATER TREATMENT PLANT	Mar,2023~Dec,2024	E
246	S-OIL	VCU INSTALLATION 2nd STAGE PROJECT	Feb,2023~Mar,2024	E/P/C
245	LOTTE CHEM	ESTABLISHMENT OF INFRASTRUCTURE FOR NEW DAESAN PROJECT	Feb,2023~Feb,2024	E/P/C
244	S-OIL	OFFSITE FACILITY IMPROVEMENT FOR FEEDSTOCK IMPORT	Feb,2023~Mar,2024	E/P/C
243	GS CALTEX	PE PROCESS THROUGHPUT INCREASE DESIGN & APPROVALS	Dec,2022~Apr,2023	E
242	GS CALTEX	RFCC FLARE GAS RECOVERY SYSTEM PROJECT DETAILED DESIGN SERVICE	Nov,2022~Dec,2023	E
241	LOTTE CHEM	PIP(POTASSIUM ISOPRENOXIDE) 1,100MTPA PROJECT BASIC DESIGN	Nov, 2022~Dec, 2023	Е

* E : Engineering, P : Procurement, C : Construction

		* E : Engineering, P	: Procurement, C:C	onstruction
No.	Client	Project	Period	Scope
240	GS CALTEX	VRHCRPROCESS 2nd STAGE MEMBRANE NEW CONSTRUCTION DETAILED DESIGN SERVICE	Nov,2022~Mar,2024	Е
239	LG CHEM	DAESAN H2 56,000Nm3/hr(42,500MTPA)PLANT PROJECT	Oct,2022~Aug,2024	E/P/C
238	DAYONE ENERGY	10-3 SECTION PIPE RACK RESTORATION PLAN & STRUCTURAL & PIPING SAFETY DIAGNOSIS SERVICE	Sep,2022~Dec,2022	Е
237	LG CHEM	SUS SAN(ACRYLONITRILE-STYRENE) 40MTPA REVAMPING PROJECT	Sep,2022~Dec,2023	E/P/C
236	GS CALTEX	FEASIBILITY STUDY FOR BY-PRODUCT HYDROGEN SUPPLY PIPE AND WATER SUPPLY PIPE FOR HEAT RECOVERY	Sep,2022~Dec,2022	E
235	HANWHA ENERGY	DETAIL DESIGN SERVICE FOR LG CHEM STEAM SUPPLY PIPING INSTALLATION WORK	Aug,2022~Dec,2022	Е
234	KUMHO P&B CHEM	KKLC BPA WAREHOUSE DESIGN & APPROVAL	Aug, 2022~Sep, 2023	Е
233	KUMHO P&B CHEM	3rd FACTORY EXTERNAL PIPING PIPE RACK NEW PROJECT	Jul,2022~May,2024	E/P/C
232	LG CHEM	DAESAN D PILOT PLANT PROJECT	Jul,2022~Aug,2023	E/P/C
231	FARMHANNONG	TIAFENACIL PRODUCTION FACILITY BASIC DESIGN	Jul,2022~Sep,2022	Е
230	LX MMA	P3 EXPANSION BASIC DESIGN & TIC	Jul,2022~0ct,2022	Е
229	LG CHEM	PBAT 3,000MTPA PROJECT	Jul,2022~Mar,2023	п
228	JEONYOUNG R.G.O	WASTE SYNTHETIC RESIN 7,920MTPA RECYLED OIL 4,752MTPA ENERGY CONVERSION PROJECT	Jul,2022~May,2023	E/P/C
227	XI C&A	NCC T/A & STEAM NETWORK OPTIMIZATION PROJECT DESIGN	Jul,2022~Feb,2023	Е
226	HAMPYEONG-GUN	LIVING RESOURCES RECOVERY CENTER INSTALLATION PROJECT	Jun,2022~Jun,2023	P/C
225	GS E&C	BASIC & DETAIL DESIGN RELATED TO NO.1 PAREX PROCESS MVR PROJECT	Jun,2022~Jun,2024	Е
224	KUMHO P&B CHEM	DESIGN & APPROVAL FOR STT(I) MIBK TANK USE CHANGE	Jun,2022~Dec,2022	Е
223	LOTTE CHEM	NEW250,000MTPA HPEO REFINING FACILITY IN DAESAN EG-1 PLANT	Jun, 2022~Dec, 2023	E/P/C
222	HANWHA ENERGY	DETAILED DESIGN OF CRESOL STEAM SUPPLY PIPING INSTALLATION WORK	May,2022~May,2023	Е
221	NAMHAE CHEM	BASIC DESIGN OF 810MTPD 30% FUMING SULFURIC ACID MANUFACTURING FACILITY	May,2022~Aug,2023	Е
220	HYUNDALENG	LG CHEM ABS REBUILDING PROJECT	May,2022~Jun,2022	Е
219	HANJU	DESIGN SERVICED RELATED TO DISSOLVED REFINED SALT BUSINESS (PHASE 1)	May,2022~Sep,2022	Е
218	LOTTE CHEM	VANADIUM ELECTROLYTE 480MTPA PRODUCTION PLANT CONSTRUCTION	May,2022~Jun,2023	E/P/C
217	LG CHEM	LDPE EXTERNAL PIPING PIPE RACK EXTENSION DESIGN	May,2022~Dec,2022	Е
216	KUMHO P&B CHEM	FACTORY 1,2 RTO(12,000NM3/HR, 23,000NM3/HR) INSTALLATION PROJECT	May,2022~Jan,2023	E/P/C
215	KUMHO POLY CHEM	VOC IMPROVEMENT DESIGN	May,2022~Aug,2022	Е
214	LG CHEM	LLDPEWEATHER PILOT OSBL FEED, TIC SERVICE	Apr,2022~Jul,2022	Е
213	GANGJIN-GUN	DAEGU JEODU DISTRICT VILLAGE SEWERAGE MAINTENANCE PROJECT	May,2022~May,2024	P/C
212	KUMHO POLY CHEM	PLANT IMPROVEMENT DESIGN	Apr,2022~Dec,2022	Е
211	KUMHO MITSUI CHEM	PLANT ANNUAL SHUT-DOWN PROJECT	Apr,2022~Nov,2022	E/P/C
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No.	Client	Project	Period	Scope
210	LG CHEM	DETAILED DESIGN FOR INTRODUCTION OF HIGH-CONCENTRATION PROCESS IN YEOSU PC PLANT	Mar,2022~May,2023	Е
209	LG CHEM	DAESAN O PILOT 2nd PROJECT BASIC DESIGN & TIC SERVICE	Mar,2022~Jun,2022	E
208	LG CHEM	YEOSU NCC 2 PLANT RAW C5 EXPANSION DETAILED DESIGN	Feb,2022~Dec,2022	E
207	LG CHEM	YEOSU HDPE PLANT LINE-1 PROCESS DESIGN	Feb,2022~Apr,2022	E
206	KUMHO POLY CHEM	EPDM 50,000MTPA BASIC ENGINEERING	Jun,2022~Feb,2022	E
205	GANGJIN-GUN	GUNDONG BIJA DISTRICT VILLAGE SEWERAGE MAINTENANCE PROJECT	Jan,2022~Jan,2024	P/C
204	KUMHO P&B CHEM	LP PROCESS 60,000MTPA NEW REVAMPING PROJECT	Jan,2022~Apr,2023	E/P/C
203	LOTTE CHEM	L-NC PROJECT RELATED EXTERNAL C3 LPG PIPING FEASIBILITY STUDY	Jan,2022~Jun,2022	E
202	KICOX	YEOSU INDUSTRIAL COMPLEX PUBLIC PIPE RACK PHASE 4 CONSTRUCTION(INCREASED STAGE) DETAILED DESIGN	Jan,2022~Jul,2022	Е
201	WONIK MATERIALS	500KG/DAY H2 PRODUCTION PROCESS DETAILED DESIGN	Dec,2021~Jun,2022	E
200	JAEWON INDUSTRIAL	DETAILED DESIGN SERVICE RELATED TO THE EXTENSION OF 3 NMP TOWERS AT THE HUNGARY PLANT	Dec,2021~Jun,2022	E
199	GS CALTEX	PURGE GAS SUPPLY PIPE REVIEW SERVICE	Dec,2021~Jan,2022	Е
198	KUMHO POLY CHEM	3 LINE DEBOTTLENECKING PROJECT RELATED WORK	Dec,2021~Aug,2022	E/P/C
197	LG CHEM	ABS PLANT FLARE STACK NEW CONSTRUCTION DETAILED DESIGN	Dec,2021~Mar,2023	E
196	S&I CORP.	DESIGN OF A NEW PLANT TO PRODUCE 50,000MTPA OF PBAT (POLYBUTYLENE ADIPATE TEREPHTHALATE)	Nov,2021~Dec,2023	E
195	KUMHO POLY CHEM	4 LINE MVR(UC-403) NEW INSTALLATION PROJECT RELATED WORK	Nov,2021~Nov,2022	E/P/C
194	LG CHEM	TRANSPARENT ABS DEBOTTLENECKING PROJECT	Nov,2021~Apr,2022	E
193	PURIOGEN	BASIC DESIGN SERVICE FOR PURIOGEN YEOSU PG-1 PLANT ESTABLISHMENT	Nov,2021~Mar,2022	Е
192	S&I CORP.	BDP & TIC SERVICE FOR THE ESTABLISHMENT OF AN 80,000MTPA MMA(METHYL METHACRYLATE) PLANT IN ULSAN	Nov,2021~Dec,2021	Е
191	JEONYOUNG R.G.O	25MTPD COMBUSTIBLE WASTE ENERGY CONVERSION PROJECT FEASIBILITY STUDY	Oct,2021~Jun,2022	E
190	S&I CORP.	PILOT FACILITY DESIGN FOR RESEARCH & DEVELOPMENT OF POLY OLEFIN ELASTOMER	Sep,2021~Sep,2022	Е
189	S&I CORP.	50MTPA C4F6 PILOT BASIC DESIGN	Sep,2021~Dec,2021	E
188	JINSUNG ENG	BASIC DESIGN OF SEMICONDUCTOR SPECIAL GAS MASS PRODUCTION PLANT	Sep,2021~Nov,2021	E
187	S&I CORP.	OMA(OCTANOLE METHACRYLATE) 37.3MTPD DETAILED DESIGN & TIC SERVICE	Aug,2021~Sep,2021	Е
186	KOREA JAESAE NEUNGWON	18,000MTPA OF HIGH NICKEL CATHODE MATERIAL NEW LINE CONSTRUCTION PROJECT	Aug,2021~Jun,2022	Е
185	KUMHO PETRO CHEM	SSBR 60,000MTPA REVAMPING PROJECT	Aug,2021~Dec,2022	E/P/C
184	LG CHEM	PVC 400,000MTPA REVAMPING PROJECT	Aug,2021~0ct,2022	P/C
183	LG CHEM	ABS DP 220,000MTPA REVAMPING PROJECT FEED DESIGN	Aug,2021~Dec,2021	E
182	GS E&C	KPIC NEO-II & KBD PROJECT (PIPING/ELEC./INSTR./CIVIL)	Jul,2021~Mar,2023	Е
181	HANWHA SOLUTION	TECHNICAL MANAGEMENT TEAM HANYANG BRIDGE FACILITY PRECISE SAFETY DIAGNOSIS	Jul,2021~0ct,2021	E

 $*\,E\,\colon Engineering,\ P\,\colon Procurement,\ C\,\colon Construction$

		* E · Engineering, 1		
No.	Client	Project	Period	Scope
180	KUMHO MITSUI CHEM	NO.2 MDI PLANT REVAMPING PROJECT(MDI)DESIGN, EQUIPMENT DELIVERY SERVICE	Jun,2021~Dec,2023	E/P/C
179	KUMHO MITSUI CHEM	NO.2 MDI PLANT PROJECT(FOX) DESIGN, EQUIPMENT DELIVERY SERVICE	Jun,2021~Dec,2023	E/P/C
178	JAEWON INDUSTRIAL	PMA 24,000MTPA PRODUCTION PROCESS DESIGN	May,2021~0ct,2021	E
177	WONIK MATERIALS	GAS 2 TEAM 0.5MTPD AMMONIA HYDROGENATION PROCESS DETAIL DESIGN	Apr,2021~Aug,2021	E
176	KUMHO POLY CHEM	FACTORY1RTO-2(38,000NM3/HR2EA) NEW INSTALLATION WORK	Apr,2021~Nov,2021	E/P/C
175	KUMHO MITSUI CHEM	410,000MTPA PLANT 3D DESIGN	Apr,2021~Dec,2021	E
174	HANWHA SOLUTION	DETAILED DESIGN FOR PETROLEUM RESINR-220 DUAL	Apr,2021~Nov,2022	E
173	OCI	POHANG PLANT HSPP-MPR-001-PILOT PACKAGE MANUFACTURING WORK	Mar,2021~Jun,2021	E/P/C
172	KPIC	ONSAN PLANT NCC, DPG, ARU UNIT SAFETY VALVE & SHUT-OFF VALVE DESIGN SERVICE	Mar,2021~Dec,2021	Е
171	LG CHEM	ACS ORGANIC LOADING PROCESS DEMOLITION & RESTORATION WORK	Feb,2021~May,2021	E/P/C
170	LG CHEM	CIVIL DESIGN & STEEL STRUCTURE REVIEW RELATED TO NCC PSV DUALIZATION	Feb,2021~0ct,2021	E
169	SGC E-TEC E&C	EPC WORKS FOR PIPING AMONG LOTTE CHEMICAL 6 BLOCK INFRA 2 PROJECT	Feb,2021~Apr,2022	E/P/C
168	DAYONE ENERGY	ISBL/OSBL STEAM SUPLLY PROJECT FOR LOTTE GS CHEMICAL	Feb,2021~0ct,2021	E/P/C
167	LGCHEM	ABS PLANT NEW FLARE STACK CAPACITY REVIEW & DESIGN	Jan,2021~May,2021	E
166	DOOSAN HEAVY I&C	H25MTPD HYDROGEN LIQUEFACTION PROJECT (BASIC & DETAIL DESIGN)	Jan,2021~Feb,2023	E
165	YTT	200M3/HR GASOLINE & BUTANE MIXING PROJECT	Jan,2021~Mar,2021	E/P/C
164	LOTTE CHEM	ABS 65,000MTPA→68,000MTPA REVAMPING PROJECT BASIC DESIGN & FEED	Jan,2021~Apr,2021	E
163	KUMHO POLY CHEM	FACTORY 2 RTO(65,000NM3/HR 2EA) NEW INSTALLATION PROJECT	Dec,2020~Sep,2021	E/P/C
162	LG CHEM	DETAILED DESIGN FOR PVC SL-3 REVAMPING PROJECT	Dec,2020~Nov,2022	E
161	LG CHEM	3AA DEBOTTLENECKING BASIC DESIGN	Dec,2020~Nov,2022	E
160	JAEWON INDUSTRIAL	JWH-2 PROJECT NMPTOWER 2 PIPING PRODUCTION	Oct,2020~Mar,2021	Е
159	WONIK MATERIALS	YC 0.1% B2H6 & H2 MIX PROJECT DETAIL DESIGN & APPROVAL	Dec,2020~Mar,2021	E
158	DAYONE ENERGY	LOTTE GS CHEMICAL OSBL DETAILED DESIGN	Dec,2020~Feb,2021	Е
157	YTT	YTT BUTANE BLENDING PROJECT RELATED DETAILED DESIGN & SUPERVISION AGENCY	Nov,2020~Mar,2021	E
156	HYUNDALENG	HDO BIO DIESEL OVERALL DESIGN	Nov,2020~Dec,2020	Е
155	KOREA JAESAE NEUNGWON	ANNUAL OUTPUT OF 65,000MTPA LITHIUM BATTERY CATHODE MATERIAL PROJECT	Nov,2020~Sep,2021	Е
154	LG CHEM	PSV DESIGN ADEQUACY REVIEW	Oct,2020~Mar,2021	Е
153	KUMHO P&B CHEM	LIQUID EPOXY RESIN(III) 20,000MTPA REVAMPING PROJECT	0ct,2020~0ct,2021	E/P/C
152	JAEWON INDUSTRIAL	DETAILED DESIGN FOR THE EXPANSION OF 2 NMP TOWERS IN HUNGARY FACTORY	Dec,2020~May,2021	Е
151	KUMHO MITSUI CHEM	2020 T/A(TURN AROUND) INVESTMENT DESIGN SERVICE	Sep,2020~Dec,2020	E



No.	Client	Project	Period	Scope
150	LG CHEM	FEASIBILITY STUDY FOR NEW PIPE RACK REVAMPING BETWEEN YONGSUNG & JEOKRYANG COMPLEX	Aug,2020~Feb,2021	Е
149	LG CHEM	FEASIBILITY STUDY FOR NEW/REVAMPING PIPE RACK FOR OUTDOOR OFFICIALS	Jul,2020~Dec,2020	Е
148	OCI	GUNSAN PLANT, RE CVD THERMAL STRESS ANALYSIS	Jul,2020~0ct,2020	Е
147	KICOX	FEASIBILITY ANALYSIS & BASIC DESIGN SERVICE FOR YEOSU INDUSTRIAL COMPLEX'S PUBLIC PIPE RACK & LOADING ARM INSTALLATION PROJECT	Jul,2020~Mar,2021	Е
146	LG CHEM	DETAIL DESIGN & APPROVAL OF BPA HEAVIES	Jul,2020~Dec,2020	Е
145	DAEA ENERGY	SULFUR SOLIDIFICATION PLANT DESIGN & APPROVAL	Jul,2020~Aug,2021	Е
144	S-OIL	VCU(9,000NM3/HR)INSTALLATION PROJECT	Jun,2020~Dec,2020	E/P/C
143	HANWHA SOLUTION	OA PRODUCTION TEAM 2-EH STORAGE TANK(V-369C) INSTALLATION	Jun,2020~Mar,2021	E/P/C
142	HANWHA SOLUTION	OA OXO CATALYST PROCESS INCREASE P&C CONSTRUCTION	Jun,2020~Jan,2021	E/P/C
141	KUMHO P&B CHEM	PLANT 1 KPA(IV) PLANT COOLING WATER GRP PIPE REPLACEMENT WORK	Jun, 2020~Nov, 2020	E/P/C
140	KUMHO POLY CHEM	METALLOCENE PROCESS BASIC DESIGN	May,2020~Dec,2020	Е
139	EMTECH	DETAIL DESIGN FOR RELATED TO JPC-550 (1,000 L/HR PROCESS UNIT) & NEW SITE TANK INSTALLATION PROJECT	May,2020~Jun,2021	E
138	LOTTE E&C	PIPING DESIGN SERVICE DURING LOTTE CHEM D-NC_R PROJECT	May,2020~Nov,2020	E
137	CHEMICAL SAFETY AGENCY	PRODUCTION & INSTALLATION OF 3 TYPES OF OUTDOOR TRAINING FACILITIES	May,2020~Dec,2020	E/P/C
136	GANGJIN-GUN	JAKCHEON GUSANG DISTRICT VILLAGE SEWER MAINTENANCE PROJECT	May,2020~May,2022	P/C
135	GS CALTEX	3RD CONSTRUCTION OF IMPROVEMENT OF ELECTRICAL EQUIPMENT IN LOGISTICS CENTER	Apr,2020~Nov,2020	E/P/C
134	KUMHO POLY CHEM	KP-1 RTO-1(35,000NM3/HR 2EA) INSTALLATION PROJECT	Apr,2020~Dec,2021	E/P/C
133	WONIK MATERIALS	DETAIL DESIGN FOR E PROJECT IN YANGCHEONG PLANT	Mar,2020~Jan,2021	Е
132	GS E&C	YEOSU NO.2 COMPLEX PROJECT (PIPING FIELD ENGINEERING)	Mar,2020~Dec,2020	FE
131	LOTTE CHEM	NEW INSTALLATION OF D-GE/BDG EXPANSION REACTION FACILITY FOR DAESAN PLANT	Mar,2020~Mar,2021	E/P/C
130	HANWHA SOLUTION	BASF YEOSU PLANT HCL 35% EXTERNAL NEW PIPING DESIGN & APPROVAL	Mar,2020~Jun,2020	E
129	KUMHO MITSUI CHEM	MDI 200,000MTPA, CA, HYDROCHLORIC ACID OXIDATION FACILITY BASIC DESIGN	Mar,2020~Jun,2020	E
128	KUMHO POLY CHEM	1 PLANT FLARE LOAD SUMMARY & PRESSURE VESSEL INSTALLATION RELATED DESIGN	Feb, 2020~May, 2020	Е
127	MARINE GLORY	INSTALLATION OF 5 PETROCHEMICAL TANKS & DESIGN OF ADDITIONAL FACILITIES	Jan,2020~Dec,2021	Е
126	LOTTE E&C	LOTTE CHEM INFRA-2 FEED DESIGN	Jan,2020~Mar,2020	E
125	WONIK MATERIALS	DETAIL DESIGN FOR 2,000MTPA HIGH PURITY CO2 REFINING & FILLING FACILITY CONSTRUCTION PROJECT	Jan,2020~Mar,2020	Е
124	HYUNDAI ENERGY	DETAIL DESIGN OF STEAM PIPING INSTALLATION FOR GS CALTEX MFC PLANT	Dec,2019~Jan,2020	E
123	GS E&C	LG CHEM Y2C(YEOSU #2 COMPLEX) SAPO PIER EXTERNAL PIPING CONSTRUCTION	Nov,2019~Sep,2020	E/P/C
122	DOOSAN HEAVY I&C	H2 5MTPA HYDROGEN LIQUEFACTION PROJECT APPROVAL SERVICE	Nov,2019~Mar,2020	E
121	S&I CORP.	LG MMA M2 MTBE(METHYL TERTIARY BUTHYL ETHER) 150,000MTPA EXPANSION PROJECT	Nov,2019~Dec,2020	Е

*E: Engineering, P: Procurement, C: Construction

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No.	Client	Project	Period	Scope
120	YEOSU TECHNICAL DIRECTOR'S COUNCIL	PIPE RACK SAFETY DIAGNOSIS OF EXTERNAL PIPELINES BETWEEN 10-2,3 SECTIONS	Oct,2019~Mar,2020	Е
119	KUMHO P&B CHEM	80,000MTPA KAR(KUMHO ACETONE RECYCLE) PROJECT	Oct,2019~May,2021	E/P/C
118	HYUNDAI ENERGY	AIR LIQUID PIPE RACK STRUCTURE STABILITY REVIEW	Oct,2019~Oct,2019	Е
117	HANWHA CHEM	OA PRODUCTION TEAM CATALYTIC PROCESS EXPANSION DESIGN & APPROVAL	0ct,2019~Jan,2021	Е
116	KUMHO PETRO CHEM	SBS(STYRENE BUTADIENE STYRENE) 45,000T REVAMPING PROJECT	Oct,2019~Aug,2020	E/P/C
115	GS CALTEX	MFC PROJECT - 3WHARF APPROVAL SERVICE FOR THE 2nd PRODUCT PIER	Oct,2019~Apr,2021	Е
114	KUMHO MITSUI CHEM	NEW LOGISTICS BASE CONSTRUCTION	Oct,2019~Aug,2020	E/P/C
113	GS E&C	GS CALTEX MFC(MIXED FEED CRACKER) OUTSIDE PIPE LINE INSTALLATION WORK	Sep,2019~Nov,2020	Е
112	LG CHEM	DETAILED DESIGN OF VCM1 EDC(ETHYLENE DICHLORIDE) REACTION PROCESS IMPROVEMENT	Sep,2019~Jul,2020	Е
111	GS E&C	GS CALTEX MFC (MIXED FEED CRACKER) OUTER PIPE LINE INSTALLATION WORK	Sep,2019~Jul,2021	E/C
110	LOTTE E&C	WP4MTO WORK IN INDONESIA LINE PROJECT	Aug,2019~0ct,2019	Е
109	HYUNDAI ENG	KUMHOP&B CHEM BPA(BISPHENOL-A)-5 PROJECT	Aug,2019~Mar,2020	Е
108	KUMHO PETRO CHEM	DESIGN & APPROVAL FOR CATALYST MANUFACTURING FACILITIES IN 9 BLOCKS	Aug,2019~Feb,2020	Е
107	LG CHEM	DETAIL DESIGN OF SAP5 POWDER ASSEMBLY BACK-UP SYSTEM CONSTRUCTION	Jul,2019~Dec,2019	Е
106	GS CALTEX	NO.4 DIESEL HDS(87UNIT) CAPACITY INCREASE (75->80KBD) APPROVAL SERVICE	Jun,2019~May,2020	Е
105	DAEWOO PLANT	KPB2 LER(LIQUID EPOXY RESINS) STORAGE TANK 6EA INSTALLATION DESIGN	Jun,2019~Nov,2019	Е
104	E1	YEOSU STATION PIPERACK EXTENSION DESIGN PROJECT	May,2019~Nov,2019	Е
103	GS CALTEX	DETAIL DESIGN OF LPG PIPE CONSTRUCTION FROM YEOSU PLANT TO E1YEOSU STATION	May,2019~Dec,2019	Е
102	YNCC	BASIC DESIGNSERVICE FOR PIPE RACK EXPANSION PROJECT FOR THE INSTALLATION OF NEW PIPING BETWEEN PLANT 1 & 2	Apr,2019~May,2019	Е
101	KUMHO MITSUI CHEM	2019 SHUT-DOWN INVESTMENT CONSTRUCTION PROJECT	Apr,2019~Jun,2019	E/P/C
100	PMC TECH	TANK REVAMPING PROJECT DESIGN & APPROVAL	Apr,2019~Mar,2020	E
99	KUMHO POLY CHEM	TPV(THERMO PLASTIC VULCANIZATE) PLANT PROCESS IMPROVEMENT PROJECT	Apr,2019~Jul,2019	E/P/C
98	LOTTE ADVANCED MAT	ABS A4 PROCESS & HIGH HEAT-RESISTANCE NYLON PROCESS BASIC DESIGN & FEED	Mar,2019~Aug,2019	E
97	LOTTE CHEM	BASIC DESIGN FOR DAESAN GE PROCESS 5000MTPA BDG PRODUCTION PROCESS	Mar,2019~Aug,2019	E
96	GS E&C	GS CALTEXMFC(MIXED FEED CRACKER) PROJECT	Feb,2019~Apr,2021	E
95	S&I CORP.	CDC PROJECT ORGANIC CATALYST & OSBL DETAIL DESIGN SERVICE	Feb,2019~Jan,2020	E
94	LGMMA	REPLACING MMA(METHYL METHACRYLATE) PROCESS INSTRUMENT & LINE IN MMA3 PLANT	Feb,2019~Nov,2019	E/P/C
93	LG MMA	MMA3 PLANT MA PRODUCT TOWER REPLACEMENT & INSTALLATION	Feb,2019~Nov,2019	E
92	YNCC	ETHYLENE & BTX(BENZENE TOLUENE XYLENE) AREA ENERGY SAVING PROJECT	Jan,2019~Jun,2019	E/P/C
91	GS CALTEX	PETROCHEMICAL 2TEAM NO.2 AROMATICS PROCESS THROUGHPUT INCREASE BASIC/DETAILED DESIGN & APPROVAL	Jan,2019~0ct,2019	E



95 SOFCA VORAK TERMINAL VCU FACILITY MANUFACTURING INSTALLATION & DESIGNITERMINAL I) Dec. 2018-Dec. 2020 E / P / C 89 KORFA VORAK TERMINAL VCU FACILITY MANUFACTURING INSTALLATION & DESIGNITERMINAL II) Dec. 2018-Dec. 2020 E / P / C 89 VERSUMPHINGREA SHAWAGABLE-INFRASTRUCTURE EPCPROJECT Dec. 2018-Dec. 2020 E / P / C 87 LOTTE CHEM DAESAN ELANT DEGY WASTE HEAT RECOVERY ENERGY SAVING Dec. 2018-Dec. 2018 E / P / C 88 KUMHO POLY CHEM PLELET STAGE HPROJECT Dec. 2018-Dec. 2018 E / P / C 85 KORCA PLANT IND. TURKMENSTAM MTO PROJECT Dec. 2018-Jul. 2019 E 86 GSCALTEX CONSTRUCTION OF PRINCS DINSPECTION DRAWINGS Dec. 2018-Jul. 2019 E 87 GSCALTEX CONSTRUCTION OF ON SPECTION DRAWINGS Dec. 2018-Jul. 2019 E 88 GSCALTEX CONSTRUCTION OF ON SPECTION DRAWINGS Dec. 2018-Jul. 2019 E 89 GSCALTEX CONSTRUCTION OF ON SPECTION DRAWINGS Dec. 2018-Jul. 2019 E 80 GSCALTEX CONTRUCTION OF ON SPECTION DRAWINGS Dec. 2018-Jul. 2019 E 80 GSCALTEX CONTRUCTION OF ON SPECTION DRAWINGS Dec. 2018-Jul. 2019 E <td< th=""><th>No.</th><th>Client</th><th>Project</th><th>Period</th><th>Scope</th></td<>	No.	Client	Project	Period	Scope
TERMINAL	90		VCU FACILITY MANUFACTURING INSTALLATION & DESIGN(TERMINAL 2)	Dec,2018~Dec,2020	E/P/C
ACCIDENTIAL DAESAN RUANT D-EGY: WASTE HEAT RECOVERY ENERGY SAVING Dec. 2018-Nov. 2019 E / P / C	89		VCU FACILITY MANUFACTURING INSTALLATION & DESIGN(TERMINAL 1)	Dec,2018~Dec,2020	E/P/C
	88	VERSUM PM KOREA	SIHWA GABLE-INFRASTRUCTURE EPC PROJECT	Dec,2018~May,2019	E/P/C
KOREA PLANT IND. ASSOCICATION TURKMENISTAN MTO PROJECT Dec. 2018-Jul , 2019 E 84 GS CALTEX CONSTRUCTION OF PRING 3D INSPECTION DRAWINGS Dec. 2018-Jun , 2019 E 83 GS CALTEX CONSTRUCTION OF 3D INSPECTION DRAWING FOR OFFSITE PIPING IN Dec. 2018-Jun , 2019 E 84 GS E&C LG CHEM YZO PROJECT (ETHYLENE 800,000MTPA) Nov. 2018-Jun , 2019 E 85 KUMHO POLY CHEM EPDIM PLANT 2 DEBOTTLENECKING PRE-ENGINEERING Nov. 2018-Jun , 2019 E 80 Q-BIOTECH WASTEWATER TREATMENT FLANT REVAMPING DETAILED DESIGN& Nov. 2018-Jun , 2019 E 79 GS CALTEX FEASIBILITY STUDYYEOSUPLANT-ELLER PIPE SEISMIC DESIGN RELATED) 0c1 , 2018-Jun , 2019 E 76 GS CALTEX VGOFCO(VGO FLUDIZED CATALYTIC CRACKER) SLURRY FLITER TRAIN 0c1 , 2018-Jun , 2019 E 77 LGMMA PASCE DESIGNEROR TRAINESTER OF DRUM PACKING SYSTEM TO 0c1 , 2018-Dec. 2018 E 75 LG MMA TECHNICAL TEAM SERSOGE DRUM PACKING SYSTEM TO Sep. , 2018-Dec. 2018 E 75 LG MMA TECHNICAL TEAM SERSOGE DRUM PACKING SYSTEM TO Sep. , 2018-Dec. 2018<	87	LOTTE CHEM		Dec,2018~Nov,2019	E/P/C
ASSOCIATION CONTROLCTION PART MICHANDECT BEC. 2018-Jul., 2019 E 84 GS CALTEX CONTROLCTION OF PIPING 3D INSPECTION DRAWINGS 85 GS CALTEX THE PART TO CONTROLCTION OF 3D INSPECTION DRAWINGS OF STITE PIPING IN 86 GS E&BC LIG CHEM Y2C PROJECT (ETHYLENE 800,000MTPA) Nov., 2018-Jul., 2019 E 87 KUMHO POLY CHEM EPID PLANT 2 DEBOTTLENECKING PRE-ENGINEERING Nov., 2018-Jul., 2019 E 88 GS E&BC LIG CHEM Y2C PROJECT (ETHYLENE 800,000MTPA) Nov., 2018-Jul., 2019 E 89 GS BOTTECH WASTEWATER TREATMENT PLANT REVAMPING DETAILED DESIGN Nov., 2018-Jul., 2019 E 80 G-BIOTECH WASTEWATER TREATMENT PLANT REVAMPING DETAILED DESIGN Nov., 2018-Jul., 2019 E 81 KUMHO POLY CHEM WASTEWATER TREATMENT PLANT REVAMPING DETAILED DESIGN Nov., 2018-Jul., 2019 E 82 GS CALTEX FEASIBLITY STUDY (YEOSUPLANT-ELLPG PIPE SEISMIC DESIGN NELATED) Oct., 2018-Jul., 2019 E 83 GS CALTEX PEASIBLITY STUDY (YEOSUPLANT-ELLPG PIPE SEISMIC DESIGN NELATED) 84 GS CALTEX ADDITIONAL INSTALLATION-BASIC DESIGN 85 GS CALTEX ADDITIONAL INSTALLATION-BASIC DESIGN 85 GS CALTEX ADDITIONAL INSTALLATION-BASIC DESIGN 86 GS CALTEX PLOSION FOR RANSPERGE PRUM PACKING SYSTEM TO 96 GS CALTEX PLOSION FOR FORDING PROJECT FOR EXTERNAL PIPING BETWEEN 97 LIG MIMA TECHNICAL TEAM SYSOOB DEDICATED LINE TICR BASIC DESIGN 97 SEPA, 2018-Mor., 2019 E 97 LIG MIMA TECHNICAL TEAM SYSOOB DEDICATED LINE TICR BASIC DESIGN 98 P. 2018-Mor., 2019 E 97 LIG CHEM PART OF A PORTOVAL ACCORDING TO INCREASE INBOP FEED 98 LIG MIMA ESTABLISHMENT OF A CRYLLOR RUBBER PRODUCTION PROCESS PROJECT 99 LIG MIMA ESTABLISHMENT OF A CRYLLOR RUBBER PRODUCTION PROCESS PROJECT 90 LIG MIMA ESTABLISHMENT OF A CRYLLOR RUBBER PRODUCTION PROCESS PROJECT 91 LIG MIMA ESTABLISHMENT OF A CRYLLOR RUBBER PRODUCTION PROCESS PROJECT 90 LIG MIMA ESTABLISHMENT OF A CRYLLOR RUBBER PRODUCTION PROCESS PROJECT 91 LIG MIMA ESTABLISHMENT OF A CRYLLOR RUBBER PRODUCTION PROCESS PROJECT 91 LIG MIMA ESTABLISHMENT OF A CRYLLOR RUBBER PRODUCTION PROCESS PROJECT 94 LIG MIMA ESTABLISHMENT OF A CRYLLOR RUBBER PRODUCTION PROCESS PROJECT	86	KUMHO POLY CHEM	PELLET STAGE II PROJECT	Dec,2018~Oct,2019	E/P/C
GS_CALTEX CONSTRUCTION OF 3D INSPECTION DRAWING FOR OFFSITE PIPING IN Dec. 2018—Jun. 2019 E 82 GS_E&C LG_CHEM_Y2C_PROJECT_(ETHYLENE_800,000MTPA) Nov. 2018—Jun. 2021 E 83 KUMHO POLY CHEM EPDM_PLANT_2 DEBOTTLENECKINS_PRE-ENGINEERING Nov. 2018—Jun. 2021 E 84 KUMHO POLY CHEM EPDM_PLANT_2 DEBOTTLENECKINS_PRE-ENGINEERING Nov. 2018—Jun. 2021 E 85 QB_IOTECH WASTEWATERTREATMENT PLANT_REVAMPING DETAILED DESIGN_RELATED) Oct. 2018—Jun. 2019 E 86 QB_IOTECH WASTEWATERTREATMENT PLANT_ETLRS_PIPE_SEISMIC DESIGN_RELATED) Oct. 2018—Jun. 2019 E 87 GS_CALTEX FEASIBILITY STUDY_(YEOSUPLANT—ETLRS_PIPE_SEISMIC DESIGN_PELATED) Oct. 2018—Jun. 2019 E 88 GS_CALTEX FEASIBILITY STUDY_(YEOSUPLANT—ETLRS_PIPE_SEISMIC DESIGN_PELATED) Oct. 2018—Dec. 2018 E 89 GS_CALTEX VOOCCOVO_OF_UIDIOZED_CATA_YTIC_CRACKER)_SULRRY_FILTER_TRAIN Oct. 2018—Dec. 2018 E 80 GS_CALTEX ADDITIONAL_INSTALLATION—BASIC DESIGN BASIC DESIGN_OF GROUNDING_PROJECT_FOR EXTERNAL_PIPING_BETWEEN COUTSIDE_OF_MANA_PILANT COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PILANT_COUTSIDE_OF_MANA_PI	85		TURKMENISTAN, MTO PROJECT	Dec,2018~Jul,2019	E
B2 GSE&C LG CHEMY2C PROJECT (ETHYLENE 800,000MTPA) Nov.2018-Jun.2021 E 181 KUMHO POLY CHEM EPDM PLANT 2 DEBOTTLENECKINS PRE-ENGINEERING Nov.2018-Jun.2019 E 182 CB GB C LG CHEMY2C PROJECT (ETHYLENE 800,000MTPA) Nov.2018-Jun.2019 E 183 KUMHO POLY CHEM EPDM PLANT 2 DEBOTTLENECKINS PRE-ENGINEERING Nov.2018-Jun.2019 E 184 CB	84	GS CALTEX		Dec,2018~Jun,2019	E
81 KUMHO POLY CHEM EPDM PLANT 2 DEBOTTLENECKING PRE-ENGINEERING Nov, 2018-Jan, 2019 E 80 Q-BIOTECH WASTEWATER TREATMENT PLANT REVAMPING DETAILED DESIGN Nov, 2018-Jul, 2019 E 79 GS CALTEX FEASIBILITY STUDY (YEOSU PLANT-EILPG PIPE SEISMIC DESIGN RELATED) 0ct, 2018-Jan, 2019 E 78 GS CALTEX VGOPCC (VGO FLUIDIZED CATALYTIC CRACKER) SLURRY FILTER TRAIN ADDITIONAL INSTALLATION-BASIC DESIGN 70 LG MMA ADDITIONAL INSTALLATION-BASIC DESIGN 71 LG MMA BASIC DESIGN FOR TRANSFER OF DRUM PACKING SYSTEM TO OUTSIDE OF MMAS PLANT 72 LG MMA DESIGN OF GROUNDING PROJECT FOR EXTERNAL PIPING BETWEEN PLANT & OUTSIDE OF MMAS PLANT 73 LG MMA TECHNICAL TEAM \$7300B DEDICATED LINE TIC & BASIC DESIGN 74 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT / PIPING DETAILED DESIGN 75 LG CHEM STIJI (STORAGE FACILITIES INSTALLATION JUL, 2018-Jan, 2020 E / P / C 76 GC CHEM DETAILED DESIGN FOR IMPROVEMENT INVESTMENT IN EG CO2 77 REMOVAL SYSTEM 78 GS CALTEX TREVISION OF APPROVAL ACCORDING TO INCREASE IN BOP FEED 79 LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT 70 LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT 70 LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT 79 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 79 LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT 70 LG MMA MMA2 PLANT DESIGN OF ESTER WORK 71 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 71 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 71 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 72 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 73 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 74 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 75 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 76 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 76 DAWCO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APP	83	GS CALTEX		Dec,2018~Jun,2019	E
80 Q-BIOTECH WASTEWATER TREATMENT PLANT REVAMPING DETAILED DESIGN& APPROVAL Nov, 2018-Jul, 2019 E 79 GS CALTEX FEASIBILITY STUDY/YEOSUPLANT-EILPG PIPE SEISMIC DESIGN RELATED) 0ct, 2018-Jan, 2019 E 78 GS CALTEX VGOFCC(VGO PLUDIZED CATALYTIC CRACKER) SLURRY FILTER TRAIN 0ct, 2018-Dec, 2018 E 77 LG MMA BASIC DESIGN FOR TRANSFERD C DRUM PACKING SYSTEM TO OUTSIDE OF MANAS PLANT Sep, 2018-Dec, 2018 E 76 GS CALTEX DESIGNOG FRONDINOS PROJECT FOR EXTERNAL PIPING BETWEEN PLANT 8:018 TORAGE TEAM (ANTH-AGING) Sep, 2018-Dec, 2018 E 75 LG MMA TECHNICAL TEAM SF300B DEDICATED LINE TIC& BASIC DESIGN Sep, 2018-Dec, 2018 E 74 DAWOO EXC GS CALTEX SAR REVAMPING PROJECT FOR EXTERNAL PIPING BETWEEN Jul, 2018-Nov, 2019 E 73 KUMHO PRB CHEM STT(I)STORAGE FACILITIES INSTALLATION Jul, 2018-Nov, 2019 E 74 DAWOO EXC GS CALTEX SAR REVAMPING PROJECT FOR INTERCASE IN BOP FEED Jul, 2018-May, 2019 E 71 GS CALTEX REVISION OF APPROVAL ACCORDING TO INCREASE IN BOP FEED Jul, 2018-May, 2019 E 72 LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT Jul, 2018-Mar, 2020 E 75	82	GS E&C	LG CHEM Y2C PROJECT (ETHYLENE 800,000MTPA)	Nov,2018~Jun,2021	E
80 Cyclic Tech APPROVAL MOV. 2018-301, 2019 E 79 GS CALTEX FEASIBILITY STUDY(YEOSUPLANT-EILPG PIPE SEISMIC DESIGN RELATED) 0ct, 2018-7an, 2019 E 78 GS CALTEX VGOFCO(VGO FLUIDIZED CATALYTIC CRACKER) SLURRY FILTER TRAIN 0ct, 2018-Dec, 2018 E 77 LG MMA BASIC DESIGN FOR TRANSFERO FERUM PACKING SYSTEM TO OUTSIDE OF MMA3P LANT Sep, 2018-Dec, 2018 E 76 GS CALTEX DESIGN OF GROUNDING PROJECT FOR EXTERNAL PIPING BETWEEN PLANT & 0.015 STORAGE TEAM/ANTI-AGING) Sep, 2018-Dec, 2018 E 75 LG MMA TECHNICAL TEAM SF300B DEDICATED LINE TIC & BASIC DESIGN Sep, 2018-Dec, 2018 E 74 DAWOO E&C GS CALTEX SAR REVAMPING PROJECT / PIPING DETAILED DESIGN Aug. 2018-Nov. 2019 E 73 KUMHO P&B CHEM STT(I) STORAGE FACILITIES INSTALLATION Jul. 2018-Nov. 2019 E 74 DAWOO E&C GS CALTEX SAR REVAMPING PROJECT / PIPING DETAILED DESIGN Jul. 2018-May. 2019 E 75 LG CHEM DETAILED DESIGN FOR IMPROVEMENT INVESTMENT IN EG CO2 Jul. 2018-May. 2019 E 76 LG CHEM DETAILED DESIGN FOR IMPROVEMENT INVESTMENT IN EG CO2 Jul. 2018-May. 2018 E 76 LG MMA REVISION OF APPROVAL ACC	81	KUMHO POLY CHEM	EPDM PLANT 2 DEBOTTLENECKING PRE-ENGINEERING	Nov,2018~Jan,2019	E
78 GS CALTEX VGOFCC(VGO FLUIDIZED CATALYTIC CRACKER) SLURRY FILTER TRAIN ADDITIONAL INSTALLATION - BASIC DESIGN 0ct . 2018 - Dec . 2018 E 77 LG MMA BASIC DESIGN FOR TRANSFER OF DRUM PACKING SYSTEM TO OUTSIDE OF MMA3 PLANT Sep . 2018 - Dec . 2018 E 76 GS CALTEX DESIGN OF GROUNDING PROJECT FOR EXTERNAL PIPING BETWEEN PLANT & OIL STORAGE TEAM/ANTH-AGING) Sep . 2018 - Mar . 2019 E 75 LG MMA TECHNICAL TEAM SF300B DEDICATED LINE TIC & BASIC DESIGN Sep . 2018 - Dec . 2018 E 74 DAWOO E&C GS CALTEX SAR REVAMPING PROJECT / PIPING DETAILED DESIGN Aug . 2018 - Nov . 2019 E 73 KUMHO P&B CHEM STT(I) STORAGE FACILITIES INSTALLATION Jul . 2018 - Jan . 2020 E / P / C 72 LG CHEM DETAILED DESIGN FOR IMPROVEMENT INVESTMENT IN EG CO2 REMOVAL SYSTEM Jul . 2018 - Jan . 2020 E / P / C 71 GS CALTEX REVISION OF APPROVAL ACCORDING TO INCREASE IN BOP FEED THROUGHPUT Jul . 2018 - Mar . 2020 E 72 LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT Jul . 2018 - Mar . 2020 E / P / C 69 LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT Jul . 2018 - Feb . 2020 E / P / C 68 LG MMA MMA2 PLANT DESIGN OF ESTER	80	Q-BIOTECH		Nov,2018~Jul,2019	E
ADDITIONAL INSTALLATION - BASIC DESIGN	79	GS CALTEX	FEASIBILITY STUDY(YEOSUPLANT~E1LPG PIPE SEISMIC DESIGN RELATED)	0ct,2018~Jan,2019	E
OUTSIDEOFMMA3 PLANT 76 GS CALTEX DESIGNOF GROUNDING PROJECT FOR EXTERNAL PIPING BETWEEN PLANT& OIL STORAGE TEAM(ANTH-AGING) 75 LG MMA TECHNICAL TEAM SF300B DEDICATED LINE TIC & BASIC DESIGN Sep. 2018-Mar. 2019 E 76 ADWOO E&C GS CALTEX SAR REVAMPING PROJECT / PIPING DETAILED DESIGN Aug. 2018-Nov. 2019 E 77 KUMHO P&B CHEM STT(I) STORAGE FACILITIES INSTALLATION JUI. 2018-Jan. 2020 E/P/C TO LG CHEM DETAILED DESIGN FOR IMPROVEMENT INVESTMENT IN EG CO2 REMOVAL SYSTEM REVISION OF APPROVAL ACCORDING TO INCREASE INBOP FEED THROUGHPUT THROUGHPUT TO LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT (DESIGN) GB LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT DUI. 2018-Mar. 2020 E/P/C BLG MMA MMA2 PLANT DESIGN OF ESTER WORK JUI. 2018-Nov. 2019 E G6 VERSUM ADM KOREA BTBAS PRODUCTION FACILITY EXPANSION PROJECT BY BATCH POLYMERIZATION OF T-BUTYL AMINE (TBA)& DICH LOROSIL ANE (DCS) DESIGN-PLANT (IPPING) PROJECT PIPING 3D SCANNING & APPROVAL JUI. 2018-Mar. 2019 E/P/C G5 HYUNDAI E&C BTBAS PRODUCTION FACILITY EXPANSION PROJECT BY BATCH POLYMERIZATION OF T-BUTYL AMINE (TBA)& DICH LOROSIL ANE (DCS) JUI. 2018-Mar. 2019 E/P/C G6 VERSUM ADM KOREA BTBAS PRODUCTION FACILITY EXPANSION PROJECT BY BATCH POLYMERIZATION OF T-BUTYL AMINE (TBA)& DICH LOROSIL ANE (DCS) JUI. 2018-Mar. 2019 E/P/C G6 SCALTEX REFINERY 3TEAM PSV DUALIZATION DETAIL DESIGN SERVICE JUI. 2018-May. 2019 E G7 SKAR GAS CHEONGJUPLANT 1 CDAREVAMPING WORK (DETAILED DESIGN) JUI. 2018-Jan. 2019 E/P/C G7 KUMHO MITSUICHEM MDI(METHYLENE DIPHENYL ISOCYANATE) 60,000MTPA PLANT REVAMPING PROJECT JUI. 2018-Jan. 2019 E/P/C	78	GS CALTEX	,	Oct,2018~Dec,2018	E
PLANT& OIL STORAGE TEAM(ANTH-AGING) 75 LG MMA TECHNICAL TEAM SF300B DEDICATED LINE TIC & BASIC DESIGN Sep. 2018-Dec. 2018 E 74 DAWOO E&C GS CALTEX SAR REVAMPING PROJECT / PIPING DETAILED DESIGN Aug. 2018-Nov. 2019 E 73 KUMHO P&B CHEM STT(I) STORAGE FACILITIES INSTALLATION JUI. 2018-Jan. 2020 E / P / C 72 LG CHEM DETAILED DESIGN FOR IMPROVEMENT INVESTMENT IN EG CO2 REMOVAL SYSTEM REVISION OF APPROVAL ACCORDING TO INCREASE INBOP FEED THROUGHPUT JUI. 2018-Dec. 2018 E TO LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT (DESIGN) GS CALTEX AMAGE PLANT DESIGN OF ESTER WORK JUI. 2018-Feb. 2020 E / P / C BE LG MMA MMA2 PLANT DESIGN OF ESTER WORK JUI. 2018-Nov. 2019 E G6 VERSUM ADM KOREA BTBAS PRODUCTION FACILITY EXPANSION PROJECT BY BATCH POLYMERIZATION OF T-BUTY LAMINE(TBA) & DICHLOROSILANE[CCS) JUI. 2018-Mar. 2019 E / P / C DESIGN-PLANT (PIPING) YEOSUU GROUP ENERGY UNDERGROUND STEAM PIPELINE GROUNDING PROJECT GS CALTEX REFINERY STEAM PSV DUALIZATION DETAIL DESIGN SERVICE JUI. 2018-May. 2019 E 63 SKAIR GAS CHEONGJU PLANT 1 CDAREVAMPING WORK(DETAILED DESIGN) JUI. 2018-Jan. 2019 E / P / C REVAMPING PROJECT REVAMPING PROJECT JUI. 2018-Jan. 2019 E / P / C JUI. 2018-Jan. 2019 E / P / C JUI. 2018-May. 2019 E	77	LG MMA		Sep,2018~Dec,2018	E
DAWOO E&C GS CALTEX SAR REVAMPING PROJECT / PIPING DETAILED DESIGN Aug., 2018-Nov., 2019 E 73 KUMHO P&B CHEM STT(I) STORAGE FACILITIES INSTALLATION Jul., 2018-Jan., 2020 E / P / C 74 LG CHEM DETAILED DESIGN FOR IMPROVEMENT INVESTMENT IN EG CO2 REMOVAL SYSTEM 75 GS CALTEX REVISION OF APPROVAL ACCORDING TO INCREASE IN BOP FEED Jul., 2018-Dec., 2018 E 76 LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT Jul., 2018-Mar., 2020 E 77 LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT Jul., 2018-Feb., 2020 E / P / C 78 LG MMA MMA2 PLANT DESIGN OF ESTER WORK Jul., 2018-Oct., 2018 E 79 DAWOO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL Jul., 2018-Nov., 2019 E 79 DAWOO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL Jul., 2018-Nov., 2019 E 79 DESIGN-PLANT (PIPING) / YEOSU GROUP ENERGY UNDERGROUND STEAM PIPELINE GROUNDING PROJECT 70 DESIGN-PLANT (PIPING) / YEOSU GROUP ENERGY UNDERGROUND STEAM PIPELINE GROUNDING PROJECT 70 DESIGN-PLANT (PIPING) / YEOSU GROUP ENERGY UNDERGROUND STEAM PIPELINE GROUNDING PROJECT 70 DESIGN-PLANT (PIPING) / YEOSU GROUP ENERGY UNDERGROUND STEAM PIPELINE GROUNDING PROJECT 71 DAWOO E&C GS CALTEX REFINERY 3TEAM PSV DUALIZATION DETAIL DESIGN SERVICE Jun., 2018-May., 2019 E 72 DESIGN-PLANT (PIPING) / YEOSU GROUP ENERGY UNDERGROUND Jun., 2018-Feb., 2019 E 73 SKAIR GAS CHEONGJUPLANT 1 CDAREVAMPING WORK/DETAILED DESIGN) Jun., 2018-Jan., 2019 E / P / C 75 RUMHO MITSUICHEM MDI/METHYLENE DIPHENYL ISOCYANATE) 60,000MTPA PLANT Jun., 2018-Jan., 2019 E / P / C	76	GS CALTEX		Sep,2018~Mar,2019	E
KUMHO P&B CHEM STT(I)STORAGE FACILITIES INSTALLATION Jul ,2018~Jan,2020 E/P/C 72 LG CHEM DETAILED DESIGN FOR IMPROVEMENT INVESTMENT IN EGCO2 REMOVAL SYSTEM 73 GS CALTEX REVISION OF APPROVAL ACCORDING TO INCREASE IN BOP FEED THROUGHPUT 74 LG MMA 75 LG MMA 76 ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT (DESIGN) 76 LG MMA 77 ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT (DESIGN) 78 LG MMA 79 LG MMA 70 LG MMA 70 LG MMA 71 ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT 70 LG MMA 71 ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT 71 Jul , 2018~Mar , 2020 E/P/C 72 LG MMA 73 MMA2 PLANT DESIGN OF ESTERWORK 74 DAWOO E&C 75 GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 76 JUL , 2018~Nov , 2019 E 77 DAWOO E&C 78 GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL 79 Jul , 2018~Mar , 2019 E/P/C 79 DESIGN-PLANT (PIPING)/YEOSU GROUP ENERGY UNDERGROUND 70 STEAM PIPELINE GROUNDING PROJECT 70 Jun , 2018~Feb , 2019 E 71 GS CALTEX 71 REVAMPING PROJECT 72 LG CHEMAY , 2018 E/P/C 73 SK AIR GAS 74 CHEONGJU PLANT 1 CDAREVAMPING WORK (DETAILED DESIGN) 75 Jun , 2018~Jan , 2019 E/P/C 76 REVAMPING PROJECT 76 LG CHEMAY , 2019 E/P/C 77 LG CHEMAY , 2019 E/P/C 78 LG CHEONGJU PLANT 1 CDAREVAMPING WORK (DETAILED DESIGN) 79 Jun , 2018~Jan , 2019 E/P/C	75	LG MMA	TECHNICAL TEAM SF300B DEDICATED LINE TIC & BASIC DESIGN	Sep,2018~Dec,2018	E
DETAILED DESIGN FOR IMPROVEMENT INVESTMENT IN EG CO2 REMOVAL SYSTEM 71 GS CALTEX REVISION OF APPROVAL ACCORDING TO INCREASE INBOP FEED THROUGHPUT 72 LIG MMA THROUGHPUT 73 LIG MMA THROUGHPUT 74 ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT (DESIGN) 75 LIG MMA THROUGHPUT 76 LIG MMA THROUGHPUT 77 LIG MMA THROUGHPUT 78 ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT THROUGHPUT 89 LIG MMA THROUGHPUT 80 LIG MMA THROUGHPUT 80 LIG MMA THROUGHPUT 81 LIG MMA THROUGHPUT 80 LIG MMA THROUGHPUT 81 LIG MMA THROUGHPUT 82 LIG MMA THROUGHPUT 83 LIG MMA THROUGHPUT 84 LIG MMA THROUGHPUT 85 LIG MMA THROUGHPUT 86 LIG MMA THROUGHPUT 86 LIG MMA THROUGHPUT THROU	74	DAWOO E&C	GS CALTEX SAR REVAMPING PROJECT / PIPING DETAILED DESIGN	Aug,2018~Nov,2019	E
REMOVAL SYSTEM REVISION OF APPROVAL ACCORDING TO INCREASE IN BOP FEED THROUGHPUT THROUGHPUT TO LIGIMMA RESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT (DESIGN) LIGIMMA RESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT GUESIGN) LIGIMMA RESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT JUI, 2018-Mar, 2020 E JUI, 2018-Feb, 2020 E/P/C REMOVAL SYSTEM JUI, 2018-Mar, 2020 E REMOVAL SYSTEM JUI, 2018-Mar, 2020 E JUI, 2018-Mar, 2020 E REMOVAL SYSTEM JUI, 2018-Mar, 2020 E REPINER SPRODUCTION FOR STERWORK JUI, 2018-Nov, 2019 E JUI, 2018-Nov, 2019 E REPINER SPRODUCTION FACILITY EXPANSION PROJECT BY BATCH POLYMERIZATION OF T-BUTYLAMINE (TBA)& DICHLOROSILANE (DCS) JUI, 2018-Mar, 2019 E/P/C REFINER STEAM PIPELINE GROUNDING PROJECT JUI, 2018-May, 2019 E SKAIR GAS CHEONGJU PLANT 1 CDAREVAMPING WORK (DETAILED DESIGN) JUI, 2018-Feb, 2019 E MDI (METHYLENE DIPHENYL ISOCYANATE) 60,000MTPA PLANT REVAMPING PROJECT JUI, 2018-Jan, 2019 E/P/C	73	KUMHO P&B CHEM	STT(I) STORAGE FACILITIES INSTALLATION	Jul,2018~Jan,2020	E/P/C
THROUGHPUT Jul. 2018-Dec. 2018 E Jul. 2018-Mar . 2020 E LG MMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT Jul. 2018-Mar . 2020 E/P/C LG MMA MMA2 PLANT DESIGN OF ESTER WORK Jul. 2018-Oct . 2018 E THROUGHPUT Jul. 2018-Mar . 2020 E MMA2 PLANT DESIGN OF ESTER WORK Jul. 2018-Oct . 2018 E THROUGHPUT Jul. 2018-Mar . 2019 E THROUGHPUT Jul. 2018-Mar . 2	72	LG CHEM		Jul,2018~May,2019	E
LGMMA ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT Jul, 2018-Feb, 2020 E/P/C 68 LG MMA MMA2 PLANT DESIGN OF ESTER WORK Jul, 2018-Oct, 2018 E 67 DAWOO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL Jul, 2018-Nov, 2019 E 66 VERSUM ADM KOREA BTBAS PRODUCTION FACILITY EXPANSION PROJECT BY BATCH POLYMERIZATION OF T-BUTYLAMINE(TBA) & DICHLOROSILANE(DCS) 65 HYUNDAI E&C DESIGN-PLANT (PIPING)/YEOSU GROUP ENERGY UNDERGROUND Jun, 2018-Sep, 2019 E 64 GS CALTEX REFINERY 3TEAM PSV DUALIZATION DETAIL DESIGN SERVICE Jun, 2018-May, 2019 E 65 SK AIR GAS CHEONGJU PLANT 1 CDAREVAMPING WORK (DETAILED DESIGN) Jun, 2018-Feb, 2019 E 66 KUMHO MITSUI CHEM MDI (METHYLENE DIPHENYL ISOCYANATE) 60,000 MTPA PLANT Jun, 2018~Jan, 2019 E/P/C	71	GS CALTEX		Jul,2018~Dec,2018	E
68 LG MMA MMA2 PLANT DESIGN OF ESTER WORK Jul , 2018~0ct , 2018 E 67 DAWOO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL Jul , 2018~Nov , 2019 E 66 VERSUM ADM KOREA BTBAS PRODUCTION FACILITY EXPANSION PROJECT BY BATCH POLYMERIZATION OF T-BUTYLAMINE (TBA) & DICHLOROSILANE (DCS) 65 HYUNDAI E&C DESIGN-PLANT (PIPING) YEOSU GROUP ENERGY UNDERGROUND Jun , 2018~Sep , 2019 E 64 GS CALTEX REFINERY 3TEAM PSV DUALIZATION DETAIL DESIGN SERVICE Jun , 2018—May , 2019 E 65 SK AIR GAS CHEONGJU PLANT 1 CDAREVAMPING WORK (DETAILED DESIGN) Jun , 2018~Feb , 2019 E 66 KUMHO MITSUICHEM MDI (METHYLENE DIPHENYLISO CYANATE) 60,000 MTPA PLANT Jun , 2018~Jan , 2019 E/P/C	70	LG MMA		Jul,2018~Mar,2020	E
67 DAWOO E&C GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL Jul , 2018~Nov , 2019 E 66 VERSUM ADM KOREA BTBAS PRODUCTION FACILITY EXPANSION PROJECT BY BATCH POLYMERIZATION OF T-BUTYLAMINE(TBA) & DICHLOROSILANE(DCS) 65 HYUNDAI E&C DESIGN-PLANT (PIPING) YEOSU GROUP ENERGY UNDERGROUND Jun , 2018~Sep , 2019 E 64 GS CALTEX REFINERY 3TEAM PSV DUALIZATION DETAIL DESIGN SERVICE Jun , 2018~May , 2019 E 65 SK AIR GAS CHEONGJU PLANT 1 CDAREVAMPING WORK(DETAILED DESIGN) Jun , 2018~Feb , 2019 E 66 KUMHO MITSUICHEM MDI(METHYLENE DIPHENYL ISOCYANATE) 60,000MTPA PLANT Jun , 2018~Jan , 2019 E/P/C	69	LG MMA	ESTABLISHMENT OF ACRYLIC RUBBER PRODUCTION PROCESS PROJECT	Jul,2018~Feb,2020	E/P/C
66 VERSUM ADM KOREA BTBAS PRODUCTION FACILITY EXPANSION PROJECT BY BATCH POLYMERIZATION OF T-BUTYLAMINE(TBA)& DICHLOROSILANE(DCS) 65 HYUNDAI E&C DESIGN-PLANT(PIPING)/YEOSU GROUP ENERGY UNDERGROUND Jun, 2018~Sep, 2019 E 64 GS CALTEX REFINERY 3TEAM PSV DUALIZATION DETAIL DESIGN SERVICE Jun, 2018~May, 2019 E 63 SK AIR GAS CHEONGJU PLANT 1 CDAREVAMPING WORK(DETAILED DESIGN) Jun, 2018~Feb, 2019 E 64 KUMHO MITSUICHEM MDI(METHYLENE DIPHENYL ISOCYANATE) 60,000MTPA PLANT REVAMPING PROJECT	68	LG MMA	MMA2 PLANT DESIGN OF ESTER WORK	Jul,2018~0ct,2018	E
66 VERSUM ADM ROREA POLYMERIZATION OF T-BUTYLAMINE(TBA)& DICHLOROSILANE(DCS) JU1,2018-Mar,2019 E/P/C BESIGN-PLANT(PIPING)/YEOSU GROUP ENERGY UNDERGROUND STEAM PIPELINE GROUNDING PROJECT G4 GS CALTEX REFINERY 3TEAMPSV DUALIZATION DETAIL DESIGN SERVICE Jun,2018-May,2019 E 63 SK AIR GAS CHEONGJU PLANT 1 CDAREVAMPING WORK(DETAILED DESIGN) Jun,2018-Feb,2019 E 64 KUMHO MITSUICHEM MDI(METHYLENE DIPHENYL ISOCYANATE) 60,000MTPA PLANT REVAMPING PROJECT AUT. 2018-Mar, 2019 E/P/C Jun,2018-Mar, 2019 E/P/C	67	DAWOO E&C	GS CALTEX SAR REVAMPING PROJECT PIPING 3D SCANNING & APPROVAL	Jul,2018~Nov,2019	E
64 GS CALTEX REFINERY 3TEAM PIPELINE GROUNDING PROJECT 64 GS CALTEX REFINERY 3TEAM PSV DUALIZATION DETAIL DESIGN SERVICE 63 SK AIR GAS CHEONGJU PLANT 1 CDAREVAMPING WORK (DETAILED DESIGN) 64 Jun, 2018-May, 2019 E 65 MDI (METHYLENE DIPHENYLISOCYANATE) 60,000MTPA PLANT REVAMPING PROJECT 66 REVAMPING PROJECT	66	VERSUM ADM KOREA		Jul,2018~Mar,2019	E/P/C
63 SKAIR GAS CHEONGJU PLANT 1 CDAREVAMPING WORK (DETAILED DESIGN) Jun, 2018~Feb, 2019 E 62 KUMHO MITSUI CHEM MDI (METHYLENE DIPHENYL ISOCYANATE) 60,000MTPA PLANT REVAMPING PROJECT Jun, 2018~Jan, 2019 E/P/C	65	HYUNDAI E&C		Jun,2018~Sep,2019	Е
62 KUMHO MITSUICHEM MDI(METHYLENE DIPHENYL ISOCYANATE) 60,000MTPA PLANT REVAMPING PROJECT Jun,2018~Jan,2019 E/P/C	64	GS CALTEX	REFINERY 3TEAM PSV DUALIZATION DETAIL DESIGN SERVICE	Jun,2018~May,2019	Е
REVAMPING PROJECT	63	SK AIR GAS	CHEONGJU PLANT 1 CDAREVAMPING WORK(DETAILED DESIGN)	Jun,2018~Feb,2019	E
61 VERSUM PM KOREA SIHWA OFFICE BUILDING REINFORCEMENT PROJECT Jun, 2018~0ct, 2018 E/P/C	62	KUMHO MITSUI CHEM		Jun,2018~Jan,2019	E/P/C
	61	VERSUM PM KOREA	SIHWA OFFICE BUILDING REINFORCEMENT PROJECT	Jun,2018~0ct,2018	E/P/C

* E: Engineering, P: Procurement, C: Construction

No.	Client	Project	Period	Scope
60	KUMHO MITSUI CHEM	NEWINSTALLATION M-EC520A1/A2 SYSTEM	Jun,2018~Jul,2018	P. C
59	YNCC	DETAILED DESIGN RELATED TO THE REPLACEMENT OF LOW-VOLTAGE ELECTRICAL FACILITIES IN THE PLANT 1	Jun,2018~Jul,2019	Е
58	GS E&C	MFCFEED PROJECT (CIVIL DESIGN)	Jun,2018~May,2019	Е
57	LG CHEM	BUTENE-1, RBD PROJECT BULK MATERIAL PURCHASE PROVISIONAL CONTRACT	May,2018~Jan,2019	E/P
56	VERSUM MATERIALS	DEMOLITION WORK AT SIHWA PLANT	May,2018~0ct,2018	E/P/C
55	LG CHEM	BPA 30,000MTPA REVAMPING DETAILED DESIGN &1 CASE	May,2018~Apr,2019	Е
54	SHELL KOREA	BDEP DEVELOPMENT FOR NEW STORAGE TANKS INSTALLATION	Jun,2018~Jul,2018	Е
53	LOTTE CHEM	VRU(VAPOR RECOVERY UNIT) INSTALLATION	Apr,2018~Nov,2018	P/C
52	HANWHA CHEM	OSBL PIPE RACK INSTALLATION PROJECT	Apr,2018~Sep,2018	E/P/C
51	LG CHEM	BUTENE-1, RBD PROJECT CONSTRUCTION	Apr,2018~Jan,2019	P/C
50	FARMHANNONG	ALA. BUTA, BTCM, FLO BASIC DESIGN PROJECT	Apr,2018~Apr,2018	Е
49	LG CHEM	SAP5(SUPER ABSORBENT POLYMER) 15,000MTPA DEBOTTLENECKING PROJECT	Apr,2018~0ct,2018	Е
48	LG CHEM	DETAIL DESIGN FOR EXTENSION COMPLEX UTILITY CENTER & INFRASTRUCTURE CONSTRUCTION	Apr,2018~Mar,2019	Е
47	GS E&C	LG CHEM NCC PROCESS IMPROVEMENT PROJECT	Apr,2018~Dec,2018	Е
46	BASF	8.7MTPA MIXTURE PRODUCTION BUILDING INSTALLATION PROJECT	Mar,2018~Mar,2019	E/P/C
45	LG CHEM	CA1 ELECTROLYZER PILOT FACILITY PROJECT	Mar,2018~Dec,2018	E/P/C
44	SERVEONE	YEOSU CA2 GENERAL CONTRACTOR	Mar,2018~Dec,2019	Е
43	JAEWON INDUSTRIAL	JNJ(PDP)FEED DESIGN	Mar,2018~Jul,2018	Е
42	VERSUM SPC KOREA	PYEONGTAEK CMP(CHEMICAL MECHANICAL POLISHING) PROJECT	Mar,2018~Jan,2019	E/P/C
41	GS E&C	LG CHEM 6AA PROJECT SMS/PSM	Mar,2018~May,2019	Е
40	HANWHA ENERGY	9 BLOCK PIPE RACK DESIGN	Feb,2018~Nov,2018	Е
39	LG MMA	CONSTRUCTION OF DISPERSANT SEMI-MASS PRODUCTION FACILITY & SUSPENSION POLYMERIZATION PILOT RECONSTRUCTION	Feb,2018~May,2018	Е
38	LOTTE CHEM	K-PIA, PTA IG DRYER VENT GAS PREVENTION FACILITY (ACTIVATED CARBON ADSORPTION TOWER) PRODUCTION AT ULSAN PLANT	Feb,2018~Sep,2018	E/P
37	VERSUM PM KOREA	ALCHEMY PROJECT (MCS 80MTPA + TSA 15MTPA NEW)	Feb,2018~Feb,2019	E/P/C
36	KUMHO P&B CHEM	LIQUID EPOXY RESIN(III) 45,000MTPALP & LTI PROCESS PROJECT	Jan,2018~Jun,2019	E/P/C
35	KUMHO MITSUI CHEM	COMPLEMENTARY WORK RELATED TO COLOR IMPROVEMENT	Jan,2018~Apr,2018	E/P/C
34	AISA STABILIZERS	GOJI PROJECT BASIC DESIGN	Jan,2018~Apr,2018	Е
33	YEONGJU NONGHYUP	LIVESTOCK MANURE REGIONAL INTEGRATED MANAGEMENT CENTER RESOURCE CONVERSION PILOT PROJECT	Jan,2018~0ct,2019	E/P/C
32	SERVEONE	YEOSU LG CHEM SAP5(SUPER ABSORBENT POLYMER) REVAMPING PROJECT	Nov,2017~May,2019	Е
31	GS CALTEX	DETAIL DESIGN FOR RFCC(RESIDUE FLUID CATALYTIC CRACKING UNIT) WET GAS SCRUBBER INSTALLATION	Nov,2017~0ct,2019	Е



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No.	Client	Project	Period	Scope
30	VERSUM MATERIALS	NUMAT PROJECT	Nov,2017~Mar,2018	E/P/C
29	FARMHANNONG	CRF #3,4 BASIC ENGINEERING PACKAGE SERVICE	Nov,2017~Feb,2019	Е
28	GS E&C	GS CALTEX VGOFCC(VGO FLUIDIZED CATALYTIC CRACKER) PROJECT	Oct,2017~Apr,2018	E
27	KPIC	ONSAN PLANT SS BOILER & LP ETHYLENE TANK DETAILED DESIGN	Oct,2017~Apr,2019	Е
26	SK AIR GAS	ASU PLANT CONSTRUCTION DESIGN SERVICE FOR M14 PHASE 2B SEMICONDUCTOR PLANT EXPANSION PROJECT	Oct,2017~Nov,2018	Е
25	KUMHO MITSUI CHEM	DESIGN RELATED TO INVESTMENT OTHER THAN INSTALLATION OF U-GA206D	Sep,2017~Nov,2017	Е
24	HANWHA E&C	STYRENE COPOLYMERIZATION(CP) 50,000MTPA, THE 50,000MTPA PRODUCTION FACILITY CONSTRUCTION DESIGN	Sep,2017~Jun,2019	E
23	SERVEONE	LG MMA MAA 80,000MTPA REVAMPING PROJECT	Sep,2017~May,2019	E
22	SEA ENG	MVR DESIGN PROJECT	Sep,2017~Mar,2019	Е
21	POSCO E&C	MDI 340,000MTPA PLANT PRODUCT SHIPPING SITE IMPROVEMENT WORK	Aug,2017~Apr,2018	Р
20	HYUNDAI ENG	THAILAND EFFICIENCY, ENERGY & ENVIRONMENT (3E) PROJECT	Jul,2017~Feb,2018	Е
19	S-OIL	MOKPO STORAGE VRU(VAPOR RECOVERY UNIT) PACKAGE & CONCRETE INSTALLATION WORK	Jun,2017~Dec,2017	E/P/C
18	SK SHOWA DENKO	SS PROJECT EPC LUMP & SUM TURNKEY PROJECT (CH3F 20MTPA)	Jun,2017~Dec,2018	E/P/C
17	GS E&C	3NE PROJECT	May,2017~Apr,2019	Е
16	KUMHO P&B CHEM	SER(SOLID EPOXY RESINS) STAGE II 15,000MTPA REVAMPING PROJECT	May,2017~Feb,2018	
15	KICOX	RESEARCH SERVICE FOR INSTALLING ADDITIONAL PIPING DUE TO SATURATION OF UND RGROUND PIPING IN ONSAN NATIONAL INDUSTRIAL COMPLEX	E _{May,2017~Nov,2017}	Е
14	KUMHO POLY CHEM	INSTALLATION OF LINE & HEAT EXCHANGER FOR INTEGRATED OPERATION OF PP REFRIGERATOR	Apr,2017~0ct,2017	E/P/C
13	HYUNDAI E&C	HCC THE PROJECT	Apr,2017~Aug,2017	Е
12	VERSUM MATERIALS	SIHWA BDP PROJECT	Apr,2017~Jun,2017	Е
11	BASF	TOURBILLON PROJECT DIKE INSTALLATION	Apr,2017~Jun,2017	E/P/C
10	SAMSUNG C&T	OFF-SITE IMPROVEMENT PLAN DETAIL DESIGN & APPROVAL	Apr,2017~Aug,2018	Е
9	PTT TANK TERMINAL	4,000MTPA PROPYLENE STORAGE TANK PROJECT	Mar,2017~Aug,2018	Е
8	POSCO ICT	GWANGYANG WORKS FERROMANGANESE LOW-TEMPERATURE ORC POWER GENERATION DESIGN	Mar,2017~Feb,2018	Е
7	OCI	GUNSAN PLANT, AGRICULTURAL WATER UTILIZATION FACILITY INSTALLATION	Jan,2017~Aug,2017	E/P/C
6	KPIC	ULSAN PLANT SPP PROJECT DESIGN	Mar,2017~Jul,2018	E
5	GS E&C	GS CALTEX NO.1 CDU(CRUDE DISTILLATES UNIT) REVAMP PROJECT	Mar,2017~May,2018	E
4	KUMHO MITSUI CHEM	IMPROVEMENT CONSTRUCTION FOR MDI(METHYLENE DIPHENYL ISOCYANATE) EXTENSION BOTTLENECK ELIMINATION	Feb,2017~Apr,2017	E/P/C
3	HANWHA CHEM	W-TFT CA1 TEAM 35% HYDROCHLORIC ACID SHIPPING INFRASTRUCTURE CONSTRUCTION WORK	Feb,2017~Dec,2017	E/P/C
2	KOREA SILICON	2K-1601 MVR SYSTEM INSTALLATION WORK	Jan,2017~Nov,2017	E/P/C
1	HYOSUNG	DH-1 IMPROVED PROJECT DETAILED DESIGN	Jan,2017~Dec,2017	Е



Environmental & Energy **Project Experience**

MVR (Mechanical Vapor Recompression)

* E: Engineering, P: Procurement, C: Construction

No.	Year	Project	Client	Scope
11	2016	1Factory 1-Line MVR Installation Project (using 96.6°C Waste gas, 2.4kg/cm²G 16.5Ton/hr Steam Production)	KUMHO POLY CHEM	E.P.C
10	2016	$\textbf{MVR}(\text{IV}) \textbf{Project} \ (\text{Surplus steam 10T/hr 0.4kg/cm}^2\text{G} \rightarrow 2.8kg/cm}^2\text{G Booster Production})$	KUMHO P&B CHEM	E.P.C
9	2015	KP-I Plant 2-Line MVR Project (using Low heat source steam, -0.88kg/cm²G 22.4Ton/hr Steam Production)	KUMHO POLY CHEM	E.P.C
8	2015	$\textbf{MVR}(II) \textbf{Project} \ (using \ Surplus \ Hot \ Oil, 4.5 kg/cm^2G \ 25 Ton/hr \ Steam \ Production)$	KUMHO P&B CHEM	E.P.C
7	2015	MVR Package manufacture and installation work (50Ton/hr6.9kg/cm²G→21kg/cm²G, 12Ton/hr9.8kg/cm²G→35.2kg/cm²G Boost)	KUMHO MITSUI CHEM	E.P.C
6	2014	MPC Reaction Tower MVR Project (using Waste heat, 10.5kg/cm²G 12.6Ton/hr Steam Production)	LOTTE CHEM	E.P.C
5	2014	Samsung Total Chem MVR Package Project (Surplus steam 50Ton/hr 2.5kg/cm²G→5.4kg/cm²G Boost Production)	SAMSUNG TECHWIN	E.P.C
4	2012	Construction of new plant waste heat recovery system (using 98°C Waste heat 1.2kg/cm²G 15.8Ton/hr Steam Production)	KUMHO POLY CHEM	E.P.C
3	2012	MDI 50,000MTPA MVR Project (Surplus steam 6.6Ton/hr 7kg/cm²G →18kg/cm²G Boost Production)	KUMHO MITSUI CHEM	E.P.C
2	2010	Introduction of MVR in Solvent Recovery Process (using 92°C Waste gas, 2.9kg/cm²G 6.3Ton/hr Steam Production)	KUMHO POLY CHEM	E.P.C
1	2009	Introduction of R-Line MVR System (using 102°C Waste water, 6kg/cm²G 2.9Ton/hr Steam Production)	KUMHO PETRO CHEM	E.P.C

LDAR (Leak Detection And Repair)

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No.	Year	Project	Client	Scope
9	2006	VCM LDAR System Monitoring work	HANWHA PETRO CHEM	Е
8	2005	VCM Production team LDAR system Monitoring work	HANWHA PETRO CHEM	Е
7	2005	LG Chem LDAR Supply contract	SK C&C	Е
6	2004	Hanwha Petro Chem LDAR Inventory & TAG Installation work	SK C&C	Е
5	2002	LDAR Inventory service for oil refining process 1 / MTBE process	LG CALTEX	Е
4	2002	LDAR Inventory work (Oil 2~5 Team, RFCC)	LG CALTEX	Е
3	2001	# 2 Aromatic Plant LDAR Inventory	LG CALTEX	E
2	2001	No.1 Aromatic Plant Shipment Facility LDAR Inventory	LG CALTEX	Е
1	2000	Inventory work to introduce LDAR Program to No.1 Aromatics	LG CALTEX	E

VRU (Vapor Recovery Unit)

No.	Year	Project	Client	Scope
9	2018	VRU installation (removal of VOC using VRU after removal of storage tank RTO) (1,466m³/hr)	LOTTE CHEM	E.P.C
8	2018	VRU installation design(2 Terminal CI Gas process)	KOREA VOPAK TERMINAL	Е
7	2017	Mokpo Oil Reservoir VRU Package (Water vapor treatment generated during logistics shipment (240m³/hr)	S-OIL	E.P.C
6	2012	Incheon VRU Expansion design (480m³/hr)	GS CALTEX	Е
5	2011	Busan VRU Expansion design (480m³/hr)	GS CALTEX	Е
4	2007	GS-CALTEX Detail design for VRU Installation (8,500m³/hr)	H-PLUS ENG	E
3	2006	${\sf GS-CALTEXBasicsurvey\&detaildesignforoffshoreVRUplantinstallation(8,500m^3/hr)}$	CLEAN AIR WORLD	E
2	2006	GS-CALTEX Piping design review of Aromatic Day Tank Area VRU plant	TECHWIN E&C	Е
1	2005	GS-CALTEX Piping design of Aromatic Day Tank Area VRU plant	TECHWIN E&C	Е

VCU (Vapor Combustion Unit)

* E: Engineering, P: Procurement, C: Construction

No.	Year	Project	Client	Scope
4	2023	VRU New installation Project (1,200 Nm³/hr)	KUMHO POLY CHEM	E.P.C
3	2023	VCU 2nd additional connection project (9,000Nm³/hr)	S-OIL	E.P.C
2	2020	VCU installation to reduce storage emission in #1/2 facilities area for legal compliance (9,000Nm³/hr)	S-OIL	E.P.C
1	2018	$\label{eq:vcu} \mbox{VCU equip. manufacturing, installation \& design (1,2\ \mbox{Terminal}) (2,500\ \mbox{Nm}^3/\mbox{hr}, 3,800\ \mbox{Nm}^3/\mbox{hr})}$	KOREA VOPARK TERMINAL	. E.P.C

RTO (Regenerative Thermal Oxidizer)

No.	Year	Project	Client	Scope
11	2023	Factory 1 RTO(47,000 Nm³/hr 2ea) installation project	KUMHO POLY CHEM	E.P.C
10	2023	Factory 2 RTO(80,000Nm³/hr 2ea) installation project	KUMHO POLY CHEM	E.P.C
9	2022	Factory 1,2 RTO(12,000Nm³/hr, 23,000Nm³/hr) installation project	KUMHO P&B CHEM	E.P.C
8	2021	Factory 1 RTO-2(38,000 Nm³/hr 2ea) new installation project	KUMHO POLY CHEM	E.P.C
7	2020	Factory 2 RTO(65,000Nm³/hr2ea) new Installation Project	KUMHO POLY CHEM	E.P.C
6	2020	KP-I RTO-1(35,000Nm³/hr2ea) Installation Project	KUMHO POLY CHEM	E.P.C
5	2019	High heat resistant nylon A4 mass production process basic design FEED (including new installation of RTO)	LOTTE ADVANCED MAT'L	Е
4	2016	Polymerization G-Line NB LATEX parallel production facility construction EPC (including new RTO installation)	KUMHO PETRO CHEM	E.P.C
3	2006	Yeosu NCC 3 factory Piping design for additional installation of VOC related RTO	EG GREEN TECH	E
2	2004	LG Caltex OIL RTO design	TECH WIN	E
1	2001	Civil design related to SM plant RTO	LG CHEM	Е

WWT (Waste Water Treatment)

No.	Year	Project	Client	Scope
2	2018	Wastewater treatment plant detail design & approval (Revamping)	Q-BIO TECH	E
1	2013	Wastewater treatment plant upgrading construction (steam stripping→Improved steam reduction by microbial treatment)	KUMHO MITSUI CHEM	E.P.C

Waste Resource Recycling

No.	Year	Project	Client	Scope
1	2022	Waste synthetic resin 7,920MTPA recyled oil 4,752MTPA energy conversion project	JEONYOUNG R.G.O	E.P.C



New & Renewable Energy **Project Experience**

Hydrogen system

* E: Engineering, P: Procurement, C: Construction

No.	Year	Project	Client	Scope
9	2022	30TPD LH2 Yeosu plant Project design	AIR LIQUIDE E&C	E
8	2022	CA2 Hydrogen introduction plant detailed design	LG CHEM	Е
7	2022	56,000Nm3/hr(42,500MTPA) Hydrogen plant EPC project	LG CHEM	E.P.C
6	2020	0.5TPD Ammonia Hydrogenation process detailed design	WONIK MATERIALS	Е
5	2019	H2 5 Tons/day Hydrogen liquefaction project design & Approval	DOOSAN HEAVY I&C	Е
4	2014	H2 Boosting compressor installation design	SPG CHEMICAL	Е
3	2011	Low purity hydrogen moisture removal and heating plant construction	SAMSUNG FINE CHEM	И E.P.C
2	2011	Hydrogen mixed gas piping design	SEETEC	Е
1	2004	Feasibility study service for hydrogen supply network installation	CLEAN AIR WORLD	Е

Rechargeable Battery system

No.	Year	Project	Client	Scope
3	2023	High Nickel Cathode material new line construction phase 2 project	JAESAE NEUNGWON	Е
2	2021	Annual output of 65,000MTPA Lithium Battery Cathode material(1-2) project	JAESAE NEUNGWON	Е
1	2020	Annual output of 65,000MTPA Lithium Battery Cathode material(1-1) project	JAESAE NEUNGWON	Е

Bio system

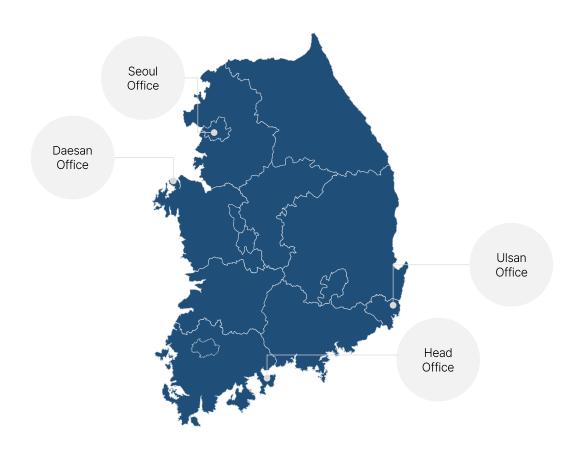
No.	Year	Project	Client	Scope
1	2023	Bio-PA pilot plant Construction(ISBL)	LG CHEM	E.P.C

CCS (Carbon Capture & Storage) **system**

No.	Year	Project	Client	Scope
5	2022	Basic design and estimate for construction of CO ₂ capture pilot plant	HANWHA TOTAL ENERGIES	Е
4	2021	FEED service for dry CO ₂ capture process after combustion of 1 million tons	KEPCO E&C	E
3	2020	Detail design for 2,000MTPA high purity CO ₂ refining & filling facility construction project	WONIK MATERIALS	Е
2	2017	150MW Enhancement of Carbon Capture Storage technology (R&D)	KEPCO	E.P.C
1	2015	10MW Carbon capture technology commercial package module developmen (R&D)	^t KEPCO	Е

Business Portfolio

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