



DONGYANG **CATALOG**

Total Engineering Service since 1988

DongYang

Total Engineering Services since 1988

01. Overview

02. Product & Service

03. Partners

04. Facilities

05. Office Location

06. Performance

07. Certification



01. Overview

1988 ~ 2006

- Established DONGYANG
- Registered as a subcontractor of HHI & HMD
- Incorporation DONGYANG Industries CO.,Ltd
- Moved factory(Dalcheon-dong, Buk-gu, Ulsan
- Achieved ISO9001 Cert.

2009 ~ 2012

- Partnership agreement with Emerson Group SPX
- Registered as a subcontractor of DSME
- Partnership agreement with AEG Power Solution
- Partnership agreement with Schneider

2016 ~ 2018

- Partnership agreement with NORIS Group
- Awarded meritorious citation for KOREA Offshore & Shipbuilding Day
- Established Daesan branch office
- Established Yeosu branch office
- Established HASUNG ENGINEERING

1988

2012

2015

2018

2019

2007 ~ 2008

- Registered as a subcontractor of SHI
- Moved to current location
- Established Geo-Je branch office
- Established R&D Dept.
- Achieved ISO14001, INNO-BIZ Cert.

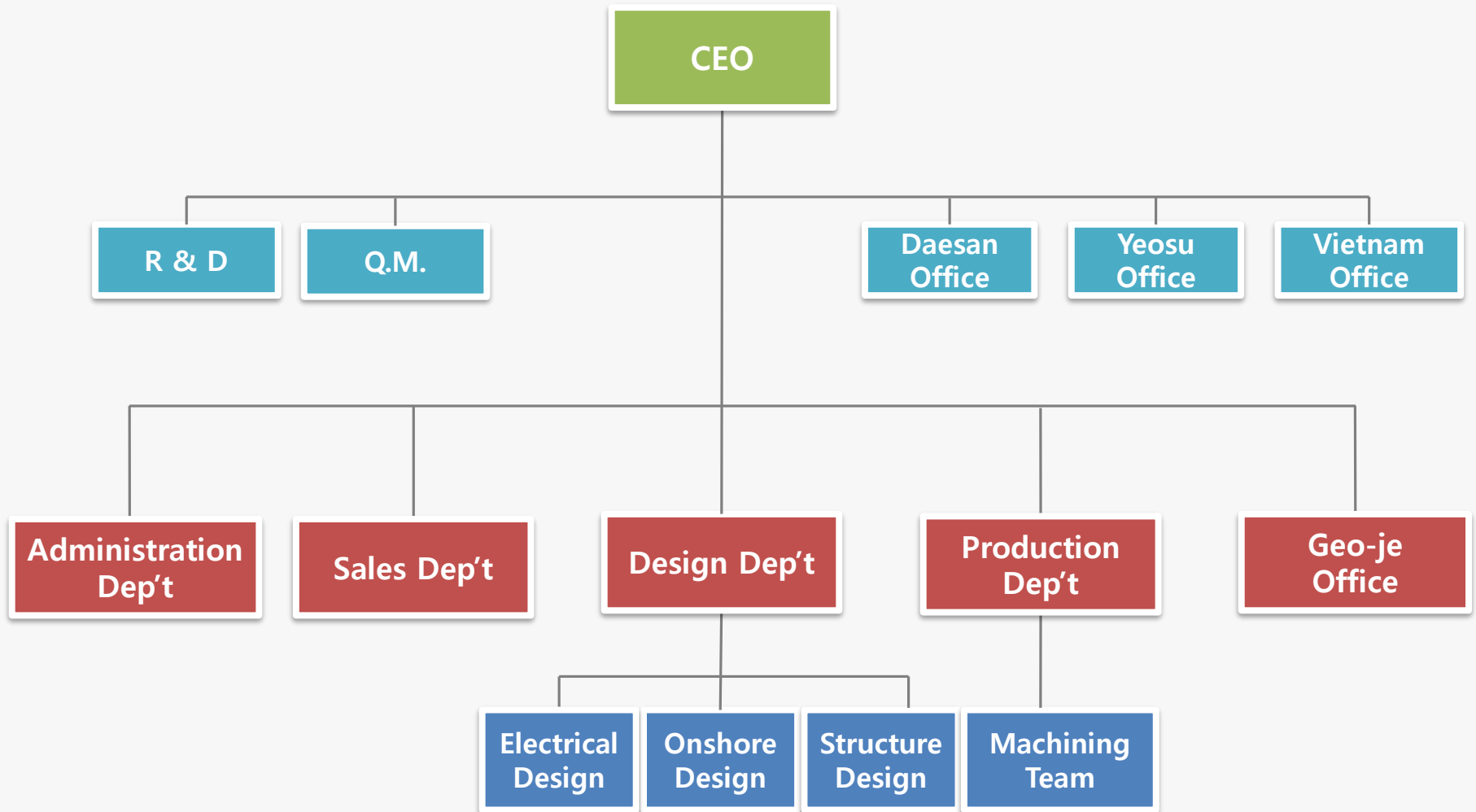
2013 ~ 2015

- Three Million Dollar Export Award from President
- Achieved OHSAS18001 Cert.
- Partnership agreement with ExxonMobil
- Partnership agreement with ABB
- Established DONGYANG ENGINEERING
- Established DONGYANG Vina
- Five Million Dollar Export Award from President

2019

- Awarded MOTIE(Ministry of Trade, Industry and Energy) prize
- Built HI CURRENT System

01. Overview



02. Product & Service

- HV/MV Switchgear For Onshore Plant



Standard

1. Switchgear according to the IEC 62271-200
2. Degree of Protection followed the IEC 60529, IP42

Electric Characteristics

1. Rated Voltage: 24kV
2. Nomal Current: up to 3,150A
3. Short-Circuit with Stand Current: up to 31.5kA

- LV Switchgear For Onshore Plant



Standard

1. Switchgear according to the IEC 62271-200
2. Degree of Protection followed the IEC 60529, IP42

Electric Characteristics

1. Rated Voltage: 690V
2. Nomal Current: 600A to 5,000A
3. Short-Circuit with Stand Current: up to 85kA

02. Product & Service

- MCC and LCS For Onshore Plant



Standard

1. Switchgear according to the IEC 62271-200
2. Degree of Protection followed the IEC 60529, IP42

Electric Characteristics

1. Rated Voltage: 690kV
2. Nomal Current
 - Horizontal Busbar: up to 400A
 - Vertical Busbar: 650A, 850A
3. Short-Circuit with Stand Current
 - Horizontal Busbar: up to 83kA
 - Vertical Busbar: up to 65kA



Main Electrical Specification

Degree of Protection followed the IEC60529: up to IP66

ENCLOSURE

1. Material: Stainless steel 316
2. Component: Weather proof box, Sun shade, Stanchion

02. Product & Service

- MV Switchboard For Marine Vessel



Main Electrical Specification

Input AC 6.6kV, 3W, 3 Phase

Degree of Protection:

IP = 32

From Design to Fabrication

- LV Switchboard For Marine Vessel



Main Electrical Specification

Input AC 690~110V, 3W, 3 Phase

Degree of Protection:

IP = 22

From Design to Fabrication

02. Product & Service

- EM'CY Switchboard For Marine Vessel
- Group Starter Panel For Marine Vessel



Main Electrical Specification

Input AC 690~110V, 3W, 3 Phase

Degree of Protection:

IP = 22, 44

From Design to Fabrication



Main Electrical Specification

Input AC 690~110V, 3W, 3 Phase

Degree of Protection:

IP = 22

From Design to Fabrication

02. Product & Service

- MCC For Marine Vessel



Main Electrical Specification

Input AC 690~110V, 3W, 3 Phase

Output 600~5000 A or Above

Degree of Protection:

IP = 22

From Design to Fabrication

* Recent Record

No.	Client	Project	Remark
1	Seadrill	HSHI S672	Semi-sub, Drilling unit
2	DSME	SHWE	
3	DSME	H3402 HEEREMA	Pipe layer
4	DIAMOND	H2503~4, H2512, H2622	Drillship
5	NOBLE	H2505~8	Drillship
6	ROWAN	H2559/60/63/64	Drillship
7	Dolphin Drilling	H2620	Drilling Rig

02. Product & Service

- Cargo MCC For LPG, LNG Vessel



Main Electrical Specification

Input AC 690~110V, 3W, 3 Phase

Output 600~5000 A or Above

Degree of Protection:

IP = 22

From Design to Fabrication

* Recent Record

Year	Amount (Vessels)	Remark
2019	18	
2018	7	
2017	16	
2016	15	
2015	16	

02. Product & Service

- Bow Thruster Starter For Marine Vessel
- Distribution Board For Marine Vessel



Main Specification

AC 6600/3300/440V, 3W, 3 Phase

Degree of Protection:

IP = 44

From Design to Fabrication

Main Electrical Specification

Input AC 440~230V, 3W, 3 Phase

Degree of Protection:

IP = 22, 44

From Design to Fabrication

02. Product & Service

- Engine Control Console



Main Electrical Specification

Input AC 220V, 3 Phase

Degree of Protection:

IP = 22

From Design to Fabrication

- Bridge Control Console



Main Electrical Specification

Input AC 220V, 3W, 3 Phase

Degree of Protection:

IP = 22

From Design to Fabrication

02. Product & Service

- Bridge Control Console



Main Electrical Specification

Input AC 220V, 3W, 3 Phase

Degree of Protection:

IP = 22

From Design to Fabrication

- Consoles For Marine Vessel



Bridge Wing Console



Group Control Panel



Chart Console



Radio Console



Wheelhouse Gauge Board

02. Product & Service

- Pressure Gauge Board For LNG



Main Specification

Temp. $-30^{\circ}\text{C} \sim 70^{\circ}\text{C}$

Pressure $0 \sim 20 \text{ bar or Above}$

Degree of Protection:

IP = 56 or Above

From Design to Fabrication

* Recent Record

Year	Amount (Vessels)	Remark
2018	7	
2017	4	
2016	7	
2015	10	

02. Product & Service

- EICT Mock-up Facility

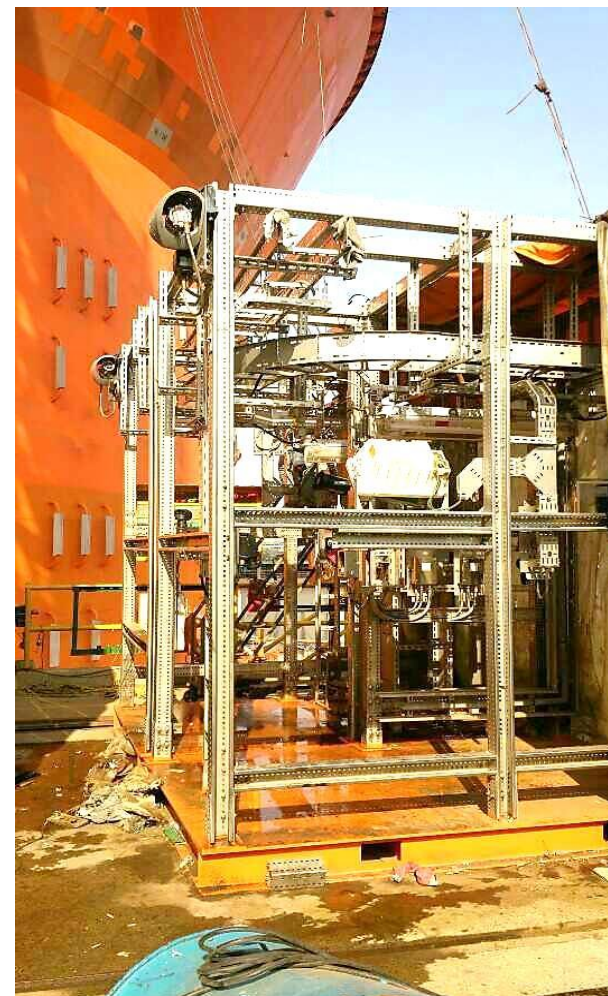


Container type

No.	Project	Year
1	Statoil Aasta Hansteen	2016
2	Statoil Mariner	2015
3	BP Clair Ridge	2014
4	BP Q204	2013

Skid type

No.	Project	Year
1	Goliath	2012



02. Product & Service

- DEX Range of Terminal Boxes(DONGYANG Developed)



- ✓ Flexible product range with many standard sizes. Tailor made sizes upon request
- ✓ Ingress protection to meet the harsh environment with IP66/67
- ✓ Standard hinged doors held to the enclosure by screws
- ✓ Many cable entries possibilities. Gland plates and MCT frames upon request
- ✓ Wide temperature range(-50°C to +80°C)
- ✓ Several earthing alternatives
- ✓ ATEX approvals

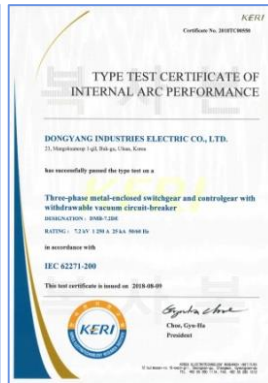
Client	Project	Year	Remark
Teekay	130,000 DWT SHUTTLE TANKER(SN2241/42/56/57)	2019	
AET	152,000 DWT SHUTTLE TANKER(SN2236 ~ 7)	2019	
TMS TANKER	159,000 DWT CRUDE OIL TANKER(SN2161 ~ 2)	2016	
OOCL	21,200 TEU Container(SN2161 ~ 7)	2016	
SOVCOMFLOT	42K DWT Artic Shuttle Tanker(SN2132 ~ 7)	2015	
SK shipping	KOGAS SK 174,000 m3 LNG Carrier(SN2153 ~ 4)	2015	



02. Product & Service

- MV/LV Switchboard(DONGYANG Developed)

[MV Switchboard]



[LV Main Switchboard]



Standard

1. Switchboard according to the IEC 62271-1, 200
2. Degree of Protection : IP33

Electric Characteristics

1. Rated voltage/current : 7.2kV, 1250 A
2. Rated frequency : 50/60 Hz
3. Rated short-time withstand current : 25 kA / 2 sec
4. Rated peak withstand current : 65 kA
5. Rated lightning impulse withstand voltage : 60kV
6. Power frequency withstand voltage : 20kV
7. Internal arc certificate : AFLR, 25kA, 1s

Standard

1. Switchboard according to the IEC 61439-1, 2
2. Degree of protection : IP22

Electric Characteristics

1. Rated voltage/current : 440V, 2500A
2. Rated frequency : 60HZ
3. Rated insulation level
 - 1) Power frequency withstand voltage : 8kV
 - 2) Impulse withstand voltage : 12kV(MSBD incoming), 8kV(MSBD feeder)
4. Rated short time current : 50kA 1sec

02. Product & Service

- MV/LV Switchboard(DONGYANG Developed)

[Group Starter Panel]



[Bow Thruster Starter]



Standard

1. Switchboard according to the IEC 61439-1, 2
2. Degree of protection : IP22

Electric Characteristics

1. Rated voltage/current : 440V, 1300A
2. Rated frequency : 60HZ
3. Rated insulation level
 - 1) Power frequency withstand voltage : 8kV
 - 2) Impulse withstand voltage : 8kV
4. Rated short time current : 50kA 1sec

Standard

1. Switchboard according to the IEC 62271-1, 200
2. Degree of Protection : IP44

Electric Characteristics

1. Rated voltage/current : 7.2kV, 300 A
2. Rated frequency : 50/60 Hz
3. Rated short-time withstand current : 6.3 kA / 1 sec
4. Rated peak withstand current : 16.38 kA
5. Rated lighting impulse withstand voltage : 60kV
6. Power frequency withstand voltage : 20kV
7. Internal arc certificate : AFLR, 6.3kA, 0.5s

02. Product & Service

- ABB & Schneider Electric OEM Fabrication(Local Service Partner)



OEM assembler

LV Distribution board (450V, 690V)

Local service partner

Installation & modification at site

Modification & storage at DONGYANG factory

Material procurement

Full range of materials required for field work



Licensed assembler & local service partner

Prisma Plus & iPM LV Distribution board

Supplied 124 Prisma Plus & iPM panels for BP Clair Ridge

Modified HV switchgear internal wiring for Total CLOV FPSO

LV SWBD commissioning service for BP Q204 FPSO



02. Product & Service

- ABTECH EEx e/d Junction Box & EMERSON Facility Fabrication & Procurement



OEM manufacturer (IECEX certified shop) & distributor

IECEX, ATEX, GOST-R, NEMA certified

Specification

SUS316, GRP

Eex e/d

Up to IP 66, 67, 68

Export to UK, USA, Singapore



Local distributor

Lighting

Receptacle

LCS (local control station)

Lighting & Receptacle supplied for
RasGas Barzan, ExxonMobil Point
Thomson project

LCS supplied for PTB, state of
Kuwait Az-Zour project



LED Version



LED Version with Guard



EFDB Push Button
and Pilot Light



EDS Tumbler Switch



02. Product & Service

- HSE Training



The purpose of safety training is to provide the knowledge necessary to perform a job safely by establishing expectations for employees on how to perform job tasks. Knowledge acquired by participation in training is one of the methods used to create an effective safety culture.

- HSE training at shipyards / offices / factories
- OHSAS 18001
- IIF for over 6 years
- Annual safety audit



We do it safely or not at all

03. Partners



04. Facilities



Bending Machine(AMADA HDS-1303 NT)



Laser Machine(AMADA Fo-3015NT)



CNC PUNCH PRESS(MURATA MOTORUM-2048LT)



CNC PRESS BRAKE
(MURATA HPB-8525AT 6NS)



BUS BAR Machine
(WJBB-310)

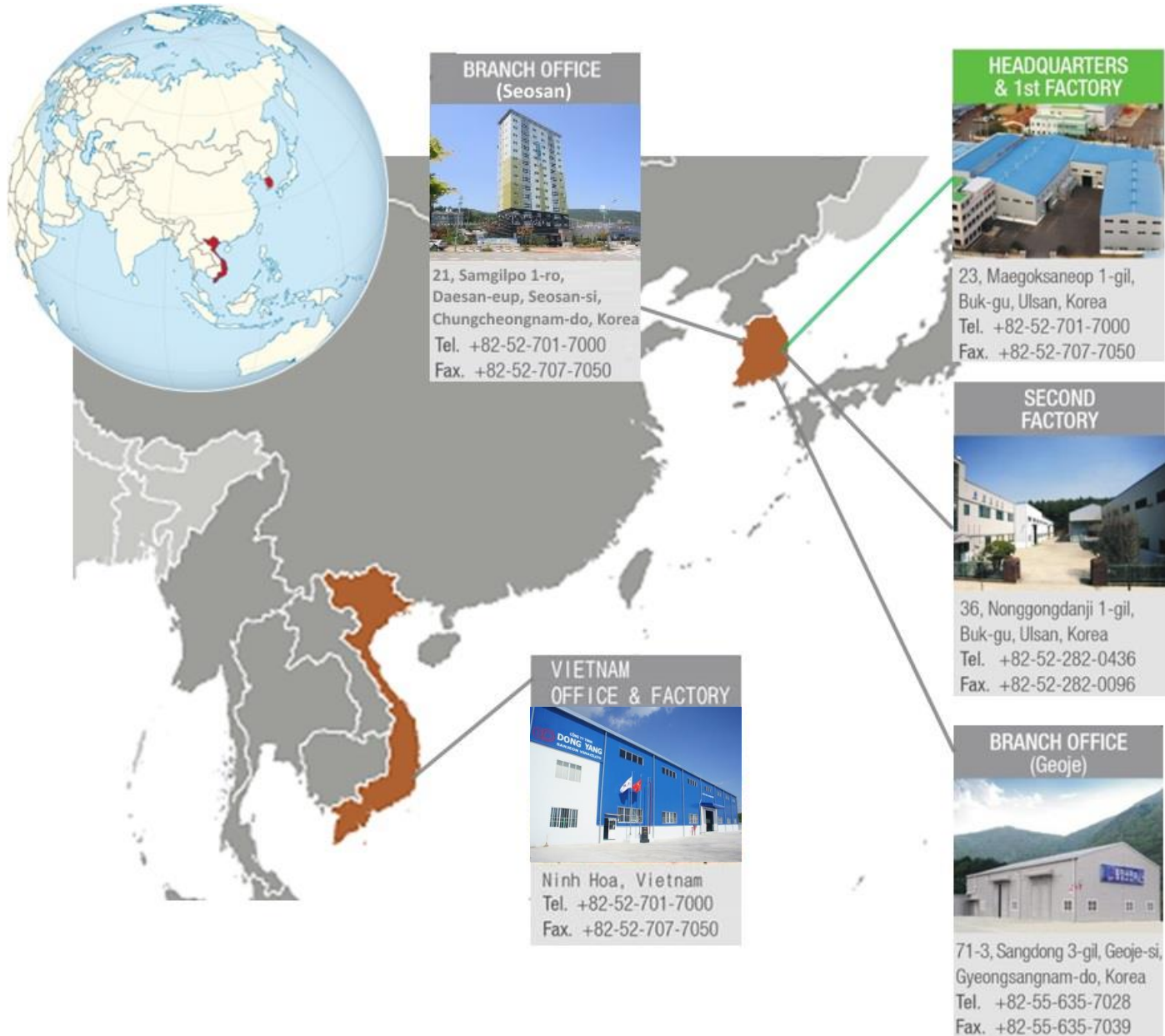


PRESS BRAKE
(AMADA RG-80)



PUNCHING PRESS
(WJPPF-460A)

05. Office Location



06. Performance Record

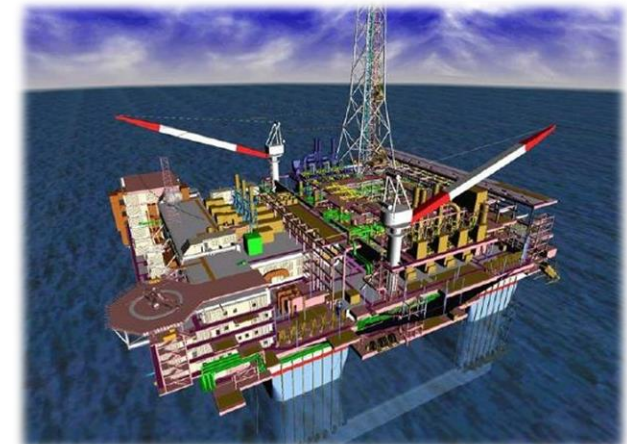
- INPEX / Ichthys CPF in SHI



SAMSUNG HEAVY INDUSTRIES

: 33 Vendor Packages - EIT Modification/Punch clear

No.	Equipment	Vendor
1	Calumn Lift/LQ Elevator	LUTZ
2	Bilge/Service/Potable Pump	FINDER
3	De-ballast Pump	EUREKA
4	Water Mist Pump	INMACO
5	Hull Valve HPU Package	ABTECH
6	On/Off Valves	PERAR / CAMERON
7	Firewater Pump	FRAMO
8	Progress Cavity Pump	NETZSCH
9	N2 Generator	Air Product
10	Fresh Water Package	OSMOPLO
11	Sewage Treatment Package	REDPOX
12	Switchgear, Transformer, Electromagnetic flow meter	ABB
13	Hipps Intergrator	ACTEMIUM
14	Air Compressor Package	ATRAS COPCO
15	Mooring Package, UFCS	BARDEX



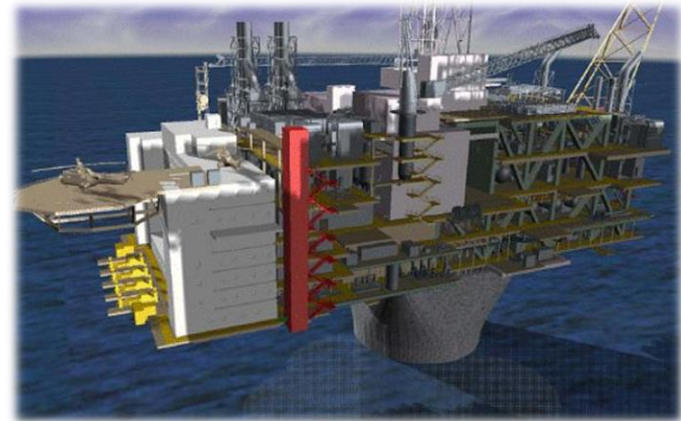
06. Performance Record

- ExxonMobil / Hebron in HHI



: Dispatched 370 Engineers & Technicians

- 1 Vendor Package Coordinator
- 7 Vendor PKG Review Engineers
- 3 PDMS Engineers
- 15 E&I Inspectors for cable tray/Device installation
- 35 Cable & Equipment Inspection
- 224 Technicians for EIT Construction
- 15 Document team for MC Inspection preparation
- 15 Cleaning Technicians
- 8 Punch kill Technicians
- 1 Commissioning Technicians



06. Performance Record

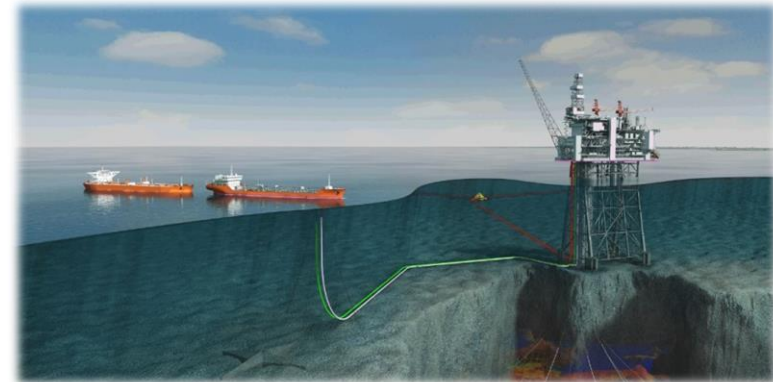
- Statoil / Mariner FSU in SHI



SAMSUNG HEAVY INDUSTRIES

: 11 Vendor Packages – EIT Modification/Punch clear

	Equipment	Vendor
1	MGO Purifier control panels	GEAWESTFALIA SEPARATOR
2	control air compressor	Sauer Compressors
3	HV / LV Main Transformer, Centralized UPS	ABB
4	EMCY Transformer	TRAFOTEK
5	Control panel for Fresh water generator	Paker Sea Recovery
6	MAIN EXTRACT FAN	HIAIR KOREA
7	SEA WATER DIST. PUMP MOTOR, Ballast pump motor, FWD Engine Instrument Panel, Turning gear starter for MGE	Wartsila Pumps
8	Boiler control cabinet	SAACKE MARINE SYSTEMS
9	Sol valve cabinet	EMERSON
10	400V, 690V Normal distribution board	APL
11	SCR control metering unit MGE	DEC marine



06. Performance Record

- ExxonMobil / Pt. Thomson in HHI



: Dispatched 144 Technicians for Vendor Package Punchkilling

- 30 of E&I Termination Technicians
- 31 of Welding Technicians
- 30 of Tubing Technicians
- 26 of Mechanical Completion Technicians
- 27 of Cleaning Technicians



06. Performance Record

- Chevron / Wheatstone Platform in DSME



: Dispatched 95 of MC & Comm. Technicians

- **51** of EIT MC Techs
(Loop check & Device Installation check)
- **10** of Lighting test and Punchkill Techs
- **20** of Punchkill Techs
- **10** of Preservation Techs
- **2** of EEHA Cable Gland Inspectors
- **2** of Mechanical Inspectors



06. Performance Record

- Chevron / Gorgon LNG Project in HHI



: Total Site Services

- Dispatched 30 Technicians in the EEHA Team for Vendor Package Modifications & Punch Clear
- 4 Technicians Obtained EEHA Competency for Installation, Inspection and Maintenance.
- Supplied QA Inspectors
- Materials Procurement
- Thermowell Machining and Nippoflange Reamming



06. Performance Record

- ExxonMobil / Berkut Platform in DSME



: As a Sole Vendor for Site E&I Modifications

- MCC and Switchgear Top-hats
- VFD, ECMS, RIO Panels Built & Certified
- ABTECH Junction Boxes Built & Certified
- Modification of Vendor Packages
- Gland Plates Built, Installed, Punched and Modified
- Wire ways Built & Installed
- Materials Procurement (needed for Modifications)
- Dispatched Fiber Optic Terminators



06. Performance Record

- BP / Skarv in SHI

: Vendor Package Modifications

punch items issued through DSB rule and RI

	Equipment	Vendor
1	Fresh Water Generator	ITTC
2	Transformer	BJORGE Norway
3	Firewater Pump	BJORGE Norway
4	Emergency Generator	Lindenberg Germany
5	Thruster Converter	Converteam
6	Cargo Pump HPU	FRAMO
7	Air Compressor	Atlas Copco



SAMSUNG HEAVY INDUSTRIES



06. Performance Record

- Teekay / FPSO in SHI

: DSP Dryer Skid Modifications/Punch clear

E&I and Mechanical

- Welding and Piping Modifications
- Tubing Installation
- JB relocations
- Cable tray design, building and routing

SAMSUNG

SAMSUNG HEAVY INDUSTRIES



06. Performance Record

- Fred Olsen Semi Drilling Rig in HHI



: ABB MV, LV SWBD & MCC Panel Modification

7 Technicians for CT wiring modification

- Install CT Wires to corresponding each terminals.
- Complete to insert the missing units in the cubicle.

5 Technicians for Punch clear

- Replace electrical components such as Blinding plugs, Hook band and T/B
- Install missing name plates and tags.
- Identifying the incorrect color corresponding type of earth bar.



06. Performance Record

- Offshore Plant

Client	Project	Year	Remark
ADGAS	IGD DAS	2011	
ADMA	Umm Shaif & Gas Injection Facilities	2009	
BCP	CALIGALI HESS	2013 ~ Present	
BP	Greater Plutonio FPSO	2006	
	Skarv FPSO	2009	
	BP Q204 FPSO	2013 ~ Present	
	BP CLAIR RIDGE Platform	2012 ~ Present	
Chevron	Jack & St.Malo (JSM) Platform	2012	
	Wheatstone Platform	2013	
	GORGON	2011 ~ Present	
	DSO Platform	2013 ~ Present	
Daewoo International	SHWE	2011, 2012	
EHRA	Saipem	2009	
Eni Norge	Goliat FPSO	2012 ~ Present	
ExxonMobil	Arkutun-Dagi Platform	2012	
	OPF Oil Injection Facility	2005	
	Kizomba A & B FPSO	2003, 2004	
	Sakhalin Orlan Platform	2005	
	East Area Platform	2007	

06. Performance Record

- Offshore Plant

Client	Project	Year	Remark
ExxonMobil	POINT THOMSON Plant Module	2013 ~ Present	
	HEBRON Platform	2013 ~ Present	
Ras Gas	BARZAN	2012 ~ Present	
Gazflot	Gazflot Drilling-rig	2008	
GE Energy(Converteam)	CONVERT MOTOR	2009	
	DSME H7038, HHI P135	2012, 2013	
H2148 / H2228 / H2229	Transocean Drill ship series	2008, 2009	
HM4001	NOBLE DRILL SHIP	2009, 2013	
H6001	OPL	2009	
INPEX	NPEX ICHTHYS CPF	2013	
	INPEX ICHTHYS FPSO	2013	
KNOC	Rong Doi Platform	2006	
LLOG	DELTA HOUSE	2013 ~ Present	
M6001	OPL DRILL SHIP	2009	
Maersk	MAERSK D/SHIP#1	2013	
Nexus	Nexus FPSO	2008	
Ocean Rig	OCEAN RIG D/SHIP#5~#7	2012, 2013	
Pacific Drilling	PDC D/SHIP#5 ~ #7	2012, 2013	

06. Performance Record

- Offshore Plant

Client	Project	Year	Remark
Seadrill	Semi Rig #1 & 2	2008	
	SEADRILL D/SHIP#4	2011 ~ 2012	
	SEADRILL D/SHIP#5	2011 ~ 2012	
	SEADRILL D/SHIP#6	2012 ~ 2013	
	SEADRILL D/SHIP#9	2013	
SHELL	Prelude FLNG	2013	
SIEMENS	SKARV FPSO	2009	Direct contract
Songa Offshore	SONGA#1 Project	2013	
	SONGA#2 Project	2013 ~ Present	
STATOIL	Golist FPSO	2013 ~ Present	
Teekay	Teekay FPSO(Knarr)	2013	
TOTAL	Moho FPU, TLP	2007	
	AKPO FPSO	2007	
	USAN FPSO	2009	
	OFON P/F	2009	
	OFON	2013 ~ Present	
Total / PTTEP	Bongkot	2011	
WOODSIDE	NR-2	2009 ~ 2011	
Dolphin Drilling	Fred Olsen H2620	2013	Norsok Standard
Seadrill	HSHI S672	2013	Norsok Standard

06. Performance Record

- Onshore Plant

Client	Project	Year	Items
HHI	HHI ENGINE TECHNIQUE CENTER	2014	SWGR, MCC
HHI	AZ ZOUR NORTH IWPP	2014	LCS
HMD	ONSAN #2 FACTORY	2014	MV & LV SWGR
HHI	AZ ZOUR NORTH IWPP	2014	JUNCTION BOX
HMD	LOW VOLTAGE SWITCHGEAR	2014	LV SWGR, BUS DUCT
HHI	HISEM TEST RIG	2014	TEST EQUIPMENT
HHI	AZ ZOUR NORTH IWPP	2014	DIST. PANEL(INDOOR)
HHI	AZ ZOUR NORTH IWPP	2014	DIST. PANEL(OUTDOOR)
HDO	VRU SUBSTATION	2014	MV & LV SWGR, MCC, DIST.PNL
HHI	MHI-LOW DUTY COMPRESSOR #9	2014	INVERTER PANEL
HHI	JEDDAH SOUTH THERMAL POWER PLANT	2015	LOCAL CONTROL PANEL
HHI	SHUQAIQ STEAM POWER PLANT	2015	LOCAL CONTROL PANEL
HHI	HYUNDAI OIL BANK / #10 FBC	2015	LOCAL CONTROL PANEL
KC COTTRELL	HYUNDAI OIL BANK / #10 BAG HOUSE & FGD	2015	MCC, LCP, LCS
EXXON MOBIL	HEBRON DES & UPM	2015	POWER TEMP. PANEL(MV,LV)

06. Performance Record

- Onshore Plant

Client	Project	Year	Items
HHI	JEDDAH SOUTH THERMAL POWER PLANT	2015	LOCAL CONTROL STATION
HHI	COAL POWER PLANT(CPP) PROJECT - CFB BOILERS	2015	DIST. PANEL
HHI	COAL POWER PLANT(CPP) PROJECT - CFB BOILERS	2015	LOCAL CONTROL PANEL
HHI	SHUQAIQ STEAM POWER PLANT	2015	LOCAL CONTROL STATION
HHI	DYNAMO TEST RIG	2015	MV, LV SWGR
HDO	HYUNDAI OIL BANK / #10 FBC	2016	MV, LV, MCC, DIST PANEL
HHI	DYNAMO TEST RIG	2016	MV, LV SWGR
HDO	HDO SDA	2017	HV&LV SWGR, MCC&DIST. PANEL
KOREA ZINC	KOREA ZINC ESS	2017	HV&LV SWGR, ACB&TR PANEL
HES	HHI 154kV ESS	2017	HV, TR, LV SWGR
HDO	MV SWGR REVAMPING	2017	6.6kV SWGR
HANWHA CHEMICAL	HANWHA CHEMICAL LINE STREAMLINE	2017	480V HiMCC & SMC PANEL
HDO	MOV MDB PANEL	2017	460V DIST. BOARD
KCC	KCC YEOJU & GIMCHEON PLANT ESS	2018	HV, LV SWGR
KCC	KCC KAC PLANT ESS	2018	HV, LV SWGR

06. Performance Record

- Onshore Plant

Client	Project	Year	Items
HYUNDAI OILBANK	DAESAN refinery DCU PROJECT	2018	MV, LV SWGR NEW & MODI.
HYUNDAI OILBANK	DAESAN refinery TA Installation	2018	TEST EQUIPMENT
HYUNDAI OILBANK	DAESAN refinery Replacement Installation for Aging Equipment	2018	LV SWGR
LG CHEMICAL	DAESAN refinery 3NE, ATS, MTS PROJECT	2018	MV, LV SWGR NEW & MODI.
HYUNDAI OILBANK	REVAMP Installation, started in 2020	2019	MV, LV SWGR NEW & MODI.
LOTTE BP CHEMICAL	ULSAN refinery B PROJECT	2019	LV SWGR
LOTTE CHEMICAL	DAESAN refinery TA Installation	2019	MV & LV SWGR MODI.
HYUNDAI CHEMICAL	DAESAN refinery MX REVAMP Installation	2019	MV, LV SWGR NEW & MODI.
HYUNDAI CHEMICAL	ULSAN refinery DEHCH PROJECT for extension of installation	2019	MV, LV SWGR NEW & MODI.
HYUNDAI OCI	DAESAN refinery HOC U3 PROJECT	2019	MV, LV SWGR NEW & MODI.
POSCO	POHANG factory 2-4 NOX facility PROJECT	2019	MV SWGR
HYUNDAI OILBANK	DAESAN refinery Cokes Load/Unload Facility Installation	2019	LV SWGR
HYUNDAI OILBANK	DAESAN refinery SMU Power Substation CONDENSER Installation	2019	CAPACITOR BANK MODI.
SK ENERGY	ULSAN refinery #33 Substation Replacement Installation	2019	LV SWGR
SK HYNIX	I-CHEON factory R & D center for extension of installation	2019	MV SWGR
SK AIRGAS	ULSAN refinery #1,2 LOBP Installation	2019	LV SWGR

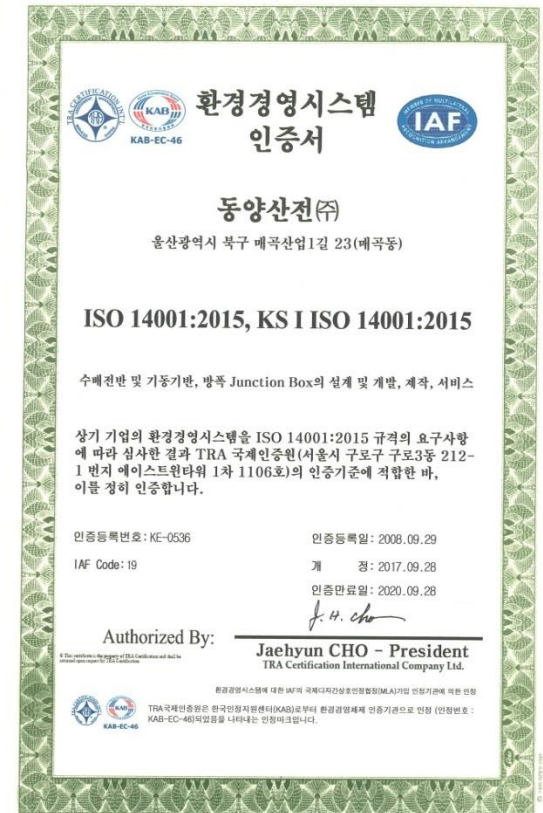
06. Performance Record

- Platform / Vessels supply

No.	Year	Items	Quantity	Ship yard
1	2015	SWITCHBOARD(MSBD, GSP, LGSP, ESBD)	64	HMD
		CONSOLE(ECC, BCC, CCC, BWC)	39	HMD
		Others(DIST, TEST, W/HGB, GCP)	67	HMD
2	2016	SWITCHBOARD(MSBD, GSP, LGSP, ESBD)	82	HMD
		CONSOLE(ECC, BCC, CCC, BWC)	5	HMD
		Others(DIST, TEST, W/HGB, GCP)	46	HMD
3	2017	SWITCHBOARD(MSBD, GSP, LGSP, ESBD)	61	HMD
		CONSOLE(ECC, BCC, CCC, BWC)	2	HMD
		Others(DIST, TEST, W/HGB, GCP)	70	HMD
4	2018	SWITCHBOARD(MSBD, GSP, LGSP, ESBD)	62	HMD
		CONSOLE(ECC, BCC, CCC, BWC)	5	HMD
		Others(DIST, TEST, W/HGB, GCP)	33	HMD
5	2019	SWITCHBOARD(MSBD, GSP, LGSP, ESBD)	50	HMD
		CONSOLE(ECC, BCC, CCC, BWC)	2	HMD
		Others(DIST, TEST, W/HGB, GCP)	19	HMD



07. Certification

• Certificates of ISO 9001/14001:2015 & OHSAS 18001:2007




07. Certification


• Certificates of DEX Series(DONGYANG J/B) & Service Facility

EC Type Examination Certificate CML 15ATEX3058 Issue 1

- Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC
- Equipment DEX Range of Terminal Boxes
- Manufacturer Dongyang Industries Electric Co Ltd
- Address 23, Maegoksaneop 1-gil, Buk-gu, Ulsan, Republic of South Korea
- The equipment is specified in the schedule of this certificate and the documents to which it refers.
- Certification Management Limited, Unit 1 Newport Business Park, New Port Road, Ellesmere Port CH65 4LZ, UK, Notified Body Number 2503, in accordance with Article 9 of Directive 94/9/EC, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.
- The examination and test results are recorded in the confidential reports listed in Section 12.
- If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.
- This EC Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 94/9/EC Article 8 apply to the manufacture of the equipment or component and are separately certified.
- Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:
EN 60079-0:2012+A11 2013 EN 60079-7:2007 EN 60079-11:2012 EN 60079-31:2014
- The equipment shall be marked with the following:



 Ex e IIC T⁺ Gb
 Ex tb IIIC T⁺ C Db
 Ta= -50°C to +**°C


 Ex Ia IIC T⁺ Ga
 Ta= -50°C to +**°C

See description for upper ambient and T class.

This certificate shall only be copied in its entirety and without change
www.CMLEx.com

1 of 4


 H M Amos MIET
 Technical Manager




IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com



Certificate No.:	IECEx CML 15.0026	Issue No. 2	Certificate history: <small>Issue No. 2 (2017-04-26) Issue No. 1 (2015-12-16) Issue No. 0 (2015-11-27)</small>
Status:	Current	Page 1 of 4	
Date of Issue:	2017-04-26		
Applicant:	Donovano Industries Electric Co Ltd 23, Maegoksaneop 1-gil, Buk-gu, Ulsan, South Korea, Republic of		
Equipment:	DEX Range of Terminal boxes		
Optional accessory:			
Type of Protection:	Ex e, tb, Ia		
Marking:	Ex e IIC T ⁺ Gb Ex Ia IIC T ⁺ Ga Ex tb IIIC T ⁺ C Db, IP67 Ta= -50° to +**°C Refer to annex for T class and upper ambient temperature		
Approved for issue on behalf of the IECEx Certification Body:	H M Amos MIET		
Position:	Technical Manager		
Signature:			
(for printed version)			
Date:	April 26, 2017		

1. This certificate and schedule may only be reproduced in full.
 2. This certificate is not transferable and remains the property of the issuing body.
 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

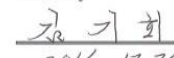
Certification Management Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port
CH65 4LZ
United Kingdom



IECEx CoC Certified Service Facility


INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx KGS S0004	Issue No. 0	Certificate history
Status:	Current	Date of Issue:	2016-12-26
Applicant:	DONGYANG Industries Electric Co., LTD Head Office 1 Factory : 23, Maegoksaneop 1-gil, Buk-gu, Ulsan, Republic of Korea 2 Factory : 38, Nonggongdan1-gil, Buk-gu, Ulsan, Republic of Korea, Republic Of		
Type of Service:	Repair and Overhaul according to IEC 60079-19		
Type of Protection:	03-5 Program - Repair Overhaul and Reclamation Flameproof Enclosure "d" Increased Safety "e"		
Scope of Service:	On site Repair and Overhaul of Ex d, Ex e Junction Box, Control Panel, Distribution Equipment. Off site work limited to replacement of internal components.		
Locations covered by this Certificate:	KR/KGS/FAR16.0001/00		
Facility Audit Report:	This certificate is issued as verification that the Service Facility and associated locations were assessed and found to comply with the IECEx Scheme requirements, relating to the type and scope of service listed above. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 03 and Operational Documents as amended.		
Approved for issue on behalf of the IECEx Certification Body:	GiHoi, Kim		
Position:	General Manager		
Signature:			
Date:	2016.12.26		

1. This certificate and schedule may only be reproduced in full.
 2. This certificate is not transferable and remains the property of the issuing body.
 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

Korea Gas Safety Corporation
1390 Wonjung-ro,
Maengdong-myeon,
Eumsong-gun,
Chungcheongbuk-do
KOREA 369-811
Korea, Republic of



07. Certification

• Certificates of Inno-Biz, Electrical Construction, Direct Production Confirmation



제 R8121 - 2650 호

기술혁신형 중소기업(Inno-Biz) 확인서

업 체 명 : 동양산전(주)

대 표 자 : 백인기

주 소 : 울산 북구 매곡산업1길 23

등 급 : A

유효기간 : 2017. 10. 14 ~ 2020. 10. 13

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



2017년 10월 17일

중소벤처기업부장관



제 울산-00690 호

전기공사업 등록증

상 호 東洋産電 株式會社

대 표 자 백인기
강주식
강태식

법인등록번호(생년월일) 230111-0062594

영 업 소 울산광역시 북구 매곡산업1길
소 재 지 23, (매곡동)

등록연월일 2018 년 04 월 25 일

「전기공사업법」 제4조제1항에 따라
위와 같이 등록하였음을 증명합니다.

2018 년 04 월 25 일

울 산 광 역 시 장



210mm×297mm(보존용지(1종) 120g/㎡)

[별지 제3호서식]

제 2018-0059-00207 호

직접생산확인증명서



○ 산 업 군 : 전기

○ 계 품 명 : 배전반

○ 생 산 업 체 명 : 동양산전(주)

○ 사 업 자 번 호 : 610-81-39674

○ 대 표 자 성 명 : 백인기

○ 소 재 지 (본사) : 울산광역시 북구 매곡산업1길 23 동양산전(주)

(공장1) 매곡본사 : [610-81-39674] 울산광역시 북구 매곡산업1길 23 동양산전(주)

○ 유효 기 간 : ※ 붙임의 세부품명별 유효기간 참조

「중소기업제품 구매촉진 및 판로지원에 관한 법률」 제9조제4항 본문 및
같은 법 시행규칙 제5조제3항에 따라 위와 같이 직접생산을 증명합니다.

출력일자 : 2018년 05월 09일

중소기업중앙회



★ 유의사항(별정조치)

- ① 하청생산 제품 또는 다른 회사 완제품 등 직접생산하지 아니한 제품, 직접생산한 완제품에 다른 회사 상표 부착제품 납품금지
(위반시, 모든 중소기업과 간접생산제품 직접생산확인 취소 및 6개월간 제신청 금지, 형사처벌)
 - ② 생산설비의 임대, 배각 등 직접생산확인기준 미충족 시 30일 이내에 증명서 반납
(미 반납시, 해당제품 직접생산확인 취소 및 6개월간 제신청 금지)
 - ③ 직접생산확인받은 공장의 이전 시 30일 이내 증명서 미반납 시 직접생산확인 취소
- ★ 이 증명서는 중소기업확인용으로 사용할 수 없습니다.
★ 이 증명서는 중소기업제품 공공구매종합정보망(www.smpp.go.kr)을 통해 출력(2018-05-09 15:25)한 증명서로서 동 정보망에서 진위여부를 확인하실 수 있습니다.

07. Certification

• Certificates of Patent

발급번호 : 3-5-2017-011278176

특허증
CERTIFICATE OF PATENT

특 허 제 10-1470176 호
Patent Number

출원번호 제 10-2012-0073849 호
Application Number
출원일 2012년 09월 20일
Filing Date
등록일 2014년 12월 01일
Registration Date

발명의명칭 Title of the Invention
디렉터 고정브라켓

특허권자Patentee
동양산전(주)(230111-*****)
울산광역시 북구 해곡산업1길 23 (해곡동)

발명자Inventor
등록사출원에 기재

위의 발명은 「특허법」에 따라 특허등록원부에 등록되었음을 증명합니다.

This is to certify that, in accordance with the Patent Act, an invention has been registered in the Korean Intellectual Property Office.

발급번호 : 3-5-2017-011278176

특허증
CERTIFICATE OF PATENT

특 허 제 10-1157885 호
Patent Number

출원번호 제 10-2010-0040164 호
Application Number
출원일 2010년 04월 20일
Filing Date
등록일 2012년 06월 13일
Registration Date

발명의명칭 Title of the Invention
선박용 태양전지판 지지구조

특허권자Patentee
동양산전(주)(230111-*****)
울산광역시 북구 해곡산업1길 23 (해곡동)

발명자Inventor
등록사출원에 기재

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This is to certify that, in accordance with the Patent Act, an invention has been registered in the Korean Intellectual Property Office.

발급번호 : 3-5-2017-031796316

디자인등록증
CERTIFICATE OF DESIGN REGISTRATION

등 록 제 30-0726789 호
Registration Number

출원번호 제 30-2012-0016389 호
Application Number
출원일 2012년 03월 20일
Filing Date
등록일 2014년 03월 20일
Registration Date

등록의 구분 심사 등록
Type of Registration Examined Registration

디자인의 대상이 되는 물품
선박용 차트테이블

디자인권자Owner of the Design Right
동양산전(주)(230111-*****)
울산광역시 북구 해곡산업1길 23 (해곡동)

창작자Creator
등록사출원에 기재

위의 디자인은 「디자인보호법」에 따라 디자인등록원부에 등록되었음을 증명합니다.

This is to certify that, in accordance with the Design Protection Act, a design has been registered in the Korean Intellectual Property Office.

발급일자 : 20170322

특허청
Korean Intellectual Property Office

2017년 03월 22일

디자인등록증
CERTIFICATE OF DESIGN REGISTRATION

등 록 제 30-0922310 호
Registration Number

출원번호 제 30-2016-0061955 호
Application Number
출원일 2016년 12월 20일
Filing Date
등록일 2017년 09월 04일
Registration Date

등록의 구분 심사 등록
Type of Registration Examined Registration

물품의 Class 제13류
디자인의 대상이 되는 물품 Product 디자인

배전반

디자인권자 Owner
동양산전(주)(230111-*****)
울산광역시 북구 해곡산업1길 23 (해곡동)

창작자 Creator
이기원(700905-*****)
울산광역시 중구 상안해일 5, 101호 (상안동, 효성빌라)

위의 디자인은 「디자인보호법」에 따라 디자인등록원부에 등록되었음을 증명합니다.

This is to certify that, in accordance with the Design Protection Act, a design has been registered in the Korean Intellectual Property Office.

특허청장
COMMISSIONER
KOREAN INTELLECTUAL PROPERTY OFFICE

성 문 모

2017년 09월 04일

디자인등록증
CERTIFICATE OF DESIGN REGISTRATION

등 록 제 30-0922311 호
Registration Number

출원번호 제 30-2017-0000978 호
Application Number
출원일 2017년 01월 06일
Filing Date
등록일 2017년 09월 04일
Registration Date

등록의 구분 심사 등록
Type of Registration Examined Registration

물품의 Class 제13류
디자인의 대상이 되는 물품 Product 배전반

디자인권자 Owner
동양산전(주)(230111-*****)
울산광역시 북구 해곡산업1길 23 (해곡동)

창작자 Creator
이기원(700905-*****)
울산광역시 중구 상안해일 5, 101호(상안동, 효성빌라)

위의 디자인은 「디자인보호법」에 따라 디자인등록원부에 등록되었음을 증명합니다.

This is to certify that, in accordance with the Design Protection Act, a design has been registered in the Korean Intellectual Property Office.

특허청장
COMMISSIONER
KOREAN INTELLECTUAL PROPERTY OFFICE

성 문 모

2017년 09월 04일

디자인등록증
CERTIFICATE OF DESIGN REGISTRATION

등 록 제 30-0922313 호
Registration Number

출원번호 제 30-2017-0000980 호
Application Number
출원일 2017년 01월 06일
Filing Date
등록일 2017년 09월 04일
Registration Date

등록의 구분 심사 등록
Type of Registration Examined Registration

물품의 Class 제13류
디자인의 대상이 되는 물품 Product 배전반

디자인권자 Owner
동양산전(주)(230111-*****)
울산광역시 북구 해곡산업1길 23 (해곡동)

창작자 Creator
이기원(700905-*****)
울산광역시 중구 상안해일 5, 101호(상안동, 효성빌라)

위의 디자인은 「디자인보호법」에 따라 디자인등록원부에 등록되었음을 증명합니다.

This is to certify that, in accordance with the Design Protection Act, a design has been registered in the Korean Intellectual Property Office.

특허청장
COMMISSIONER
KOREAN INTELLECTUAL PROPERTY OFFICE

성 문 모

Thank You
D O N G Y A N G