CEO 인사말
CEO'S Greetings

Dear Customer,

Pursuing to specialized engineering company in the field of power plant like nuclear, fossil and combined cycle, we strongly adhere closely to the beliefs, that is

**[Faith in human being,
Confidence of technologies.]**

Also we truly believe that under these creeds, we could achieve the strongest and the most valuable business.
Sincerely we are seeking to build the company which compete with our distinctive technology in the global electricity market as well as managerial targets that include rationality, specialization and globalization.

At this juncture, mobility is to be believed absolutely essentials. It goes without saying that if we can dynamically respond to the change amid globalization, we could find ourselves at the center of the change.

Now, the company is ready to make another leap-flog and huge advance. The company will further grow into a genuine specialist in power generation facilities based on a strong organization and advanced technology gained foothold in Korean power generation market, not only Korea but also worldwide.

Thank you,

CEO | Jong Dae Yang

Global Energy Service
enesG worldwide

Performance Engineering Division

Experienced over 100 power plants thermal performance acceptance testing

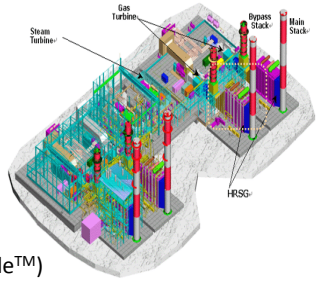
Performance Engineering Team is playing a vital role of power plant thermal performance evaluation and test instrumentation as a de facto unique professional engineering body in Korea and appreciated on equal or far better than overseas technologies.
Also, Performance Engineering Team expands overseas marketing actively towards overseas power plants as well as domestic power plants with its distinctive competency.

Main Business

Thermal Performance Acceptance Test

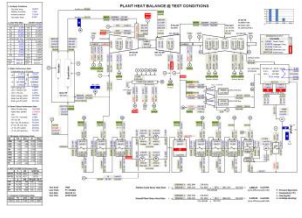
Performance acceptance testing and third party performance acceptance testing supervision according to international standards

- Overall Power Plant
- Fired Steam Generator
- Gas Turbine HRSGs
- Steam Turbines
- Gas Turbines
- Heat Exchangers
- Test Uncertainty Analysis
- Plant performance correction curves using thermodynamic heat balance modeling(GateCycle™)



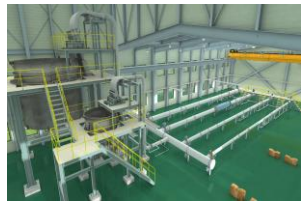
Thermal Performance Diagnosis

- Establishment of benchmark performance parameters for power plant facilities
- Diagnosis of abnormal aging, degradation
- Steam Path Audit and Performance Revaluation
- Cycle isolation valve leakage detecting service
- Execution of heat rate improvement program



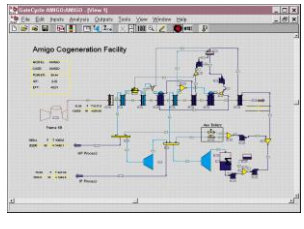
Flow Meter Calibration Facility

- Capacity : 10,000 to 75,000 kg
- Calibration process : ASME/ANSI MFC-9M-1988.
- Calibration & Measurement Capacity : ±0.23%



Thermal Performance Evaluation Tools

- Customized heat balance generating program for steam turbine cycle.
- Developing customized Excel add-in module for thermal performance evaluation
- Customized on-line performance monitoring system



Contractual Supporting

- Technical consulting on the performance guarantee related activities from ITB stage to the turn-over.

Recent 5 year's overseas experiences

Performance Acceptance Testing

- Glow CFB 115MW FPP Project in Thailand (PTC 46, PTC 4.0, PTC 6.0)
- Gheco PCB 660MW FPP Project in Thailand (PTC 46, PTC 4.0, PTC 6.0)
- Kallpa CCPP Add-on Project in Peru (PTC 46, PTC 22, PTC 4.4, PTC 6.2)
- Chilka CCPP Add-on Project in Peru (PTC 46, PTC 22, PTC 4.4, PTC 6.2)
- Rotem CCPP Project in Israel (PTC 46, PTC 22, PTC 4.4, PTC 6.2)
- Qurayya IPP CCPP Project in Saudi Arabia (PTC 46, PTC 22, PTC 4.4, PTC 6.2)
- Maragiq 300MW TPP Project in Saudi Araba (PTC 46, PTC 4.0, PTC 6.0, PTC 12.1, PTC 12.2)
- Shoaiba II CCPP Project in Saudi Arabia (on-going) (PTC 46, PTC 22, PTC 4.4, PTC 6.2)
- Tacoradi II CCPP Add-on in Ghana (on-going) (PTC 46, PTC 22, PTC 4.4, PTC 6.2)
- Ciproel CCPP Add-on in Cote D'Ivoire (on-going) (PTC 46, PTC 22, PTC 4.4, PTC 6.2)
- SLP II CCPP Add-on in Chile (on-going) (PTC 46, PTC 22, PTC 4.4, PTC 6.2)
- Tufanbeyli CFB 150MW FPP Project in Thailand (on-going) (PTC 46, PTC 4.0, PTC 6.0)

Diesel Power Plant Testing in Greece (ISO 3046)

- Kos Diesel Power Plant #5, 6
- Chios Diesel Power Plant #3, 4
- Paros Diesel Power Plant #2, 3

More than 20 units of HRSG Testing (PTC 4.4) in the Middle East Area

Performance Diagnostic Testing

- Cabras Diesel Power Plant #3,4 in Guam
- Kanudi Diesel Power Plant #1,2 in PNG

ENESG has been conducting periodical performance diagnostic testing program for the Cabras and Kanudi Diesel Power Plants for last 5 year in annual basis.

Performance Test Instruments Supply

- Full set of HRSG testing instrument (MAPNA)
- Full set of HRSG testing instrument (Benghazi)

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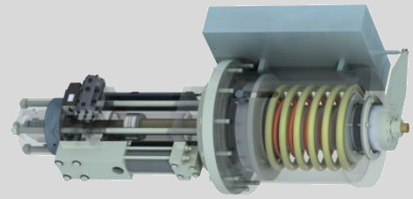
Hydraulic Actuator Technology Division

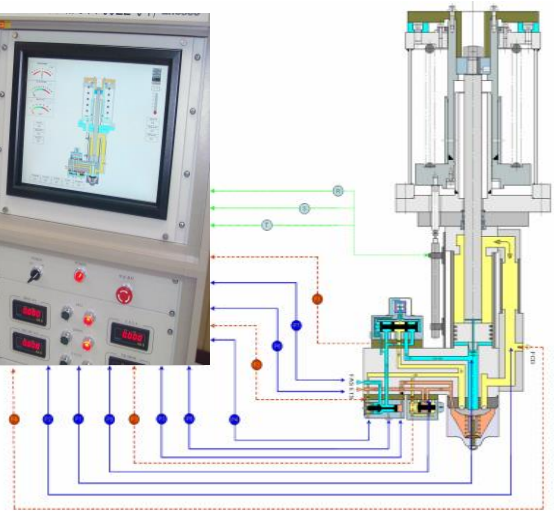
enesG Hydraulic actuator technology is essential to capture the reliability of hydraulic system for the operation of steam turbine valve. ENESG got certified as NET[1)] holding company for reliability of hydraulic technology from MKE[2]. Also ENESG supplies hydraulic actuator for TBN valve with more enhanced durability and reliability than existing products to nuclear, fossil & combined power plants.



Main Business

Engineering, Maintenance, Design, Manufacturing and comprehensive performance test services for Hydraulic Actuator

- Hydraulic actuator for fossil, nuclear, combined cycle power plant
- Diagnostic equipment specimens manufacture
- ETS (Emergency Trip System) test and maintenance



Patent, NET, NEP

Engineering & Modification

- Turbine Valve Hydraulic Actuator for Power Plant
- Hydraulic Actuator Cylinder Assembly
- Hydraulic Actuator Bushing
- Method of Hydrualic Actuator Anti Corrosion
- Turbine Valve Control Actuator using Internal Check Valve for Nuclear and Fossil Power Plant

- **Reliability & Evaluation**

- Turbine Valve Hydraulic Actuator Static and Dynamic Diagnosis Technology using THASA and Buffer
- Test Block of Non-Control Type Hydraulic Actuator
- Device and Method of Hydraulic Actuator Emergency Trip Test for Power Plant
- Test Block of Control Type Hydraulic Actuator
- (Method of Hydraulic Actuator Fast Acting Solenoid Valve Test Block)
- Device and Method of Hydraulic Actuator Test for Power Plant)

1) New Excellent Technology. ENESG's NET is the Technology of Static and Dynamic Characteristics Diagnosis for Turbine Valve Hydraulic Actuator utilizing THASA(Turbine Valve Hydraulic Actuator System Analyzer) and buffer
2) MKE: Ministry of Knowledge Economy of Korea

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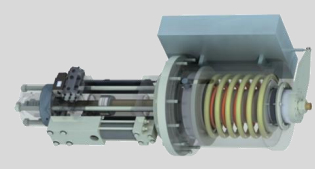
Hydraulic Actuator Technology Division

Experience of Actuator Upgrade

enesG has a lots of experiences for actuator maintenance works in the not only domestic but also overseas country



Domestic Maintenance Experiences

Description	Nuclear PP	Fossil PP	CCPP
Hydraulic Actuator	241 Actuators	223 Actuators	299 Actuators
Hydraulic Valve	21 Plants	60 Plants	12 Plants

Experiences of supplying the spare Actuator

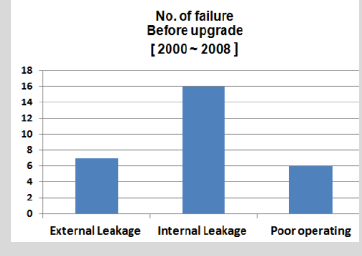
Description	Nuclear Power	Fossil Power	CCPP
2006 ~ 2011	44 Actuators	86 Actuators	21 Actuators
2012 ~ 2014	20 Actuators	16 Actuators	7 Actuators
Total	64 Actuators	96 Actuators	28 Actuators

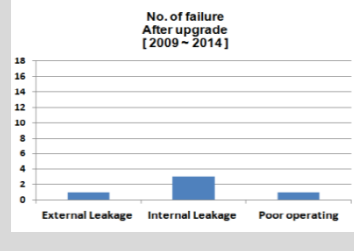
Overseas Experiences

Description	Philippines	Japan
Hydraulic Actuator	3 Actuators	2 Actuators
Hydraulic Valve	4 Servo Valves	2 set of Hydraulic & Solenoid Valves

- Maintenance, production of hydraulic actuator for turbine valve
  - Hydraulic Actuator for Steam Turbine Main Valve Modification[MHPS]
  - GT Servo Actuator Overhaul[Repair of MOOG Servo Actuators][ILIJAN COMBINED CYCLE POWER PLANT]

Effect of Actuator Upgrade





Fossil

Product	Size	Product	Size
CV 1,2,3	Cylinder 5", 10" Stroke	RSV 1,2	Cylinder 8", 10" Stroke(Non-Control Type)
CV 4	Cylinder 5", 10" Stroke	RSV 1,2	Cylinder 10", 10" Stroke(Non-Control Type)
CV 1,2,3	Cylinder 6", 10" Stroke	MSV 1	Cylinder 6", 6" Stroke(Non-Control Type)
CV 4	Cylinder 6", 10" Stroke	MSV 2	Cylinder 6", 6" Stroke(Control Type)
CV 1,2,3	Cylinder 12", 10" Stroke	MSV 1	Cylinder 8", 8" Stroke(Non-Control Type)
CV 1,2,3	Cylinder 10", 4" Stroke	MSV 2	Cylinder 8", 8" Stroke(Control Type)
IV 1,2	Cylinder 5", 12" Stroke	MSV 1	Cylinder 9", 8" Stroke(Non-Control Type)
IV 1,2	Cylinder 6", 12" Stroke	MSV 2	Cylinder 9", 8" Stroke(Control Type)
IV 1,2	Cylinder 7", 12" Stroke	MSV 1	Cylinder 9", 9" Stroke(Non-Control Type)
IV 1,2	Cylinder 8", 14" Stroke	MSV 2	Cylinder 9", 9" Stroke(Control Type)
RSV 1,2	Cylinder 10", 12" Stroke(Non-Control Type)	CRV	IV# 1~2, Cylinder 5", 12" Stroke
RSV 1,2	Cylinder 8", 8" Stroke(Non-Control Type)	CRV	RSV# 1~2, Cylinder 4", 8" Stroke
RSV 1,2	Cylinder 7", 8" Stroke(Non-Control Type)	LPA CV	4-1/4"DIA.× 239.9mm Stroke(Control Type)

Nuclear

Product	Size
CV 1,2,3	Cylinder 10", 14" Stroke
CV 4	Cylinder 10", 12" Stroke
MSV 1,3,4	Cylinder 10", 12" Stroke (Non-Control Type)
MSV 2	Cylinder 10", 12" Stroke (Control Type)
IV 1,2,3	Cylinder 5", 14" Stroke
IV 4,5,6	Cylinder 5", 14" Stroke(Non-Control Type)
ISV 1~6	Cylinder 8", 12" Stroke (Non-Control Type)
TV 1,2,3,4	Cylinder 8", 8" Stroke
GV 1,2,3,4	Cylinder 7", 20" Stroke
IV 1~6	Cylinder 6", 10" Stroke
RV 1~6	Cylinder 6", 10" Stroke

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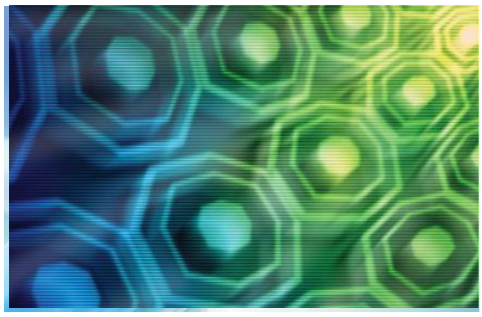


Engineering & Field Services of Nuclear Steam Supply System

enesG Nuclear Maintenance Technology Team is performing maintenance and facility improvement of core equipment for NSSS and main piping system. Also ENESG is providing comprehensive engineering services of manufacturing, developing special equipment for NSSS Main facilities

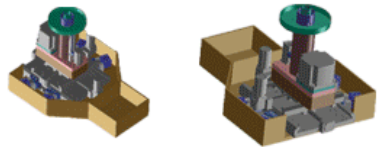
Main Business

Engineering Services

- Engineering Diagnosis, Trouble Shooting & Technical Services on diesel engines, pumps, valves, fans, Hydraulic Components, Reactor Coolant pumps, Chiller(Air conditioning System) etc.
- Designing Assist & Consulting services for design modification, performance improvement, an improvement in working or operating environment.
- Design & Consulting services for developments of Special tools & Equipments.
- Technical Services & Consulting services for high radiation work.
- Thermal Performance diagnosis, test & analysis

Field Services

- Decommissioning, dismantling and installation services on Components, Piping & Steel structures.
- Cutting & Welding of Piping System
- Maintenance, Repair of Components and Equipments
- Various kinds of welding and machining
- Various Outage Services



Manufacturing Services

- Tools & Equipments
- Steel structures
- Hydraulic oil actuators & machines
- Test benches, machines & equipments

Research and Development

- Special tools & equipments
- Maintenance technology for Reactors & Reactor coolant system
- An Improvement technology of the safety for Nuclear Power Plants
- Hydraulic oil actuators & machines
- Test benches, machines & equipments
- Welding & Machining technology

Recent Experience

- Thermal sleeves removal (Ulchin NPP 3&4, YeongGwang NPP 3&4)
- Reactor vent nozzle repair field service (YeongGwang NPP 3&4)
- A development of movable rail type pulling device for generator rotating assembly
- Automatic lapping plate manufacturing for hydraulic oil seal face on NPPs
- A machining device (remote control type) manufacturing for CEDM nozzle & guide cone on reactors
- Degasser-Condenser nozzle welding repair
- Pressurizer full structure weld overlay repair (YeongGwang NPP
- China AP1000 manway cover handling device

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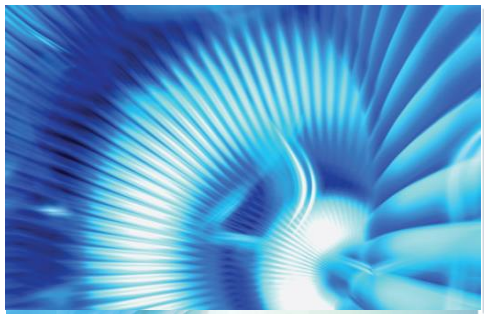


Integrity Evaluation Eng. Division

Integrity Evaluation and life assessment of Turbine rotor for fossil & nuclear power plant

enesG Integrity Evaluation Team is playing a role of Integrity Service and life assessment through the In-Service inspection about the main components of power plants, which is the major requirement of the Korea Institute Nuclear Safety.

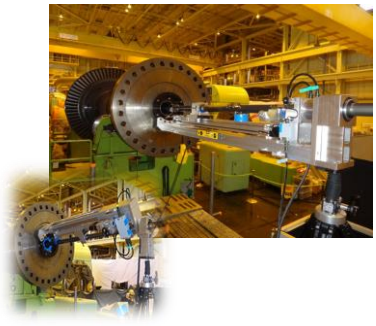
As a project to prove and assure the reliability for the MRO(Maintenance, Repair, Operation) of main components, the purpose of this engineering service is to prevent any personal or material loss that may cause the breaking down of the major facilities.

Main Business

- CPP Rotor Bore Automatic Inspection
- CPP Rotor Wheel/Bucket Dovetail Automatic Inspection
- NPP Rotor Bore Automatic Inspection
- NPP Rotor Wheel/Bucket Dovetail Automatic Inspection
- NPP Shrunkon Disc Type Rotor Automatic Inspection
- Modeling, Structure & Thermal Analysis, Crack Propagation Analysis
- Design/Manufacture of Scanners and Mechanical Devices for Nondestructive Inspection

Automated Inspection Equipment

Rotating part automated Inspection System



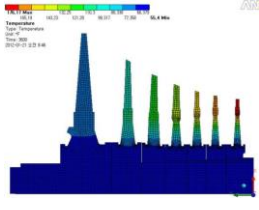
Bore Automated Inspection System

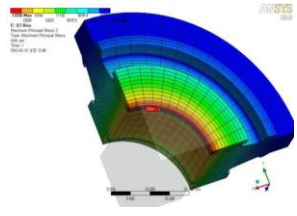
Boring & Honing Machine and MT Equipment

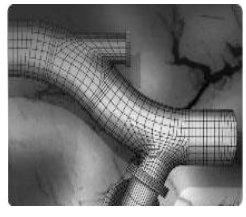
Portable Boring & Honing Machine

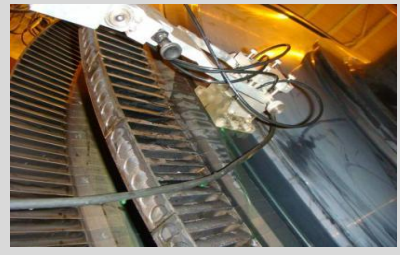
20,000Amp HWDC & FWDC MT Equipment

Modeling & Stress Analysis via Finite Element Method









Recent Experiences

- Nondestructive Testing & Integrity Evaluation for Low Pressure Turbine Rotor of Nuclear Power Plant (52 projects including Ulchin NPP LP-A Turbine Rotor)
- Nondestructive Testing & Integrity Evaluation for High Pressure Turbine Rotor of Nuclear Power Plant (16 projects including Wolsong NPP HP Turbine Rotor)
- Nondestructive Testing & Integrity Evaluation for High/Intermediate & Low Pressure Turbine Rotor of Fossil Power Plant(46 projects including Taean FPP HP Turbine Rotor)
- Nondestructive Testing for Boiler Tube of Fossil Power Plant(27 projects including Taean FPP Boiler)

Patent & New Technology

- Automated Ultrasonic Inspection Technology for Integrity Evaluation of Steam Turbine Rotor of Power Plant
- Wedge Set for Blade Root Automatic Ultrasonic Inspection
- Water Column Wedge Unit for The Automated Ultrasonic Test on Blade Pins of Turbine in The Power Plant
- Nondestructive Ultrasonic Inspection Device for Blade Tenon of Turbine Rotor
- Couplant Supply Device for Ultrasonic Testing
- Ultrasonic Testing Scanner for Turbine Rotor
- Integrated Inspection Scanner for Turbine Rotor Bore
- Wedge Unit for Pinned Finger Type Blade Root Ultrasonic Testing

Leading Technologies being developed

- Domestic Development of LP Turbine Rotor Curved axial entry wheel & bucket Inspection Technology and automatic device
- Development of Inspection System for High Pressure Feedwater Heater Tube

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회사연혁
Company History

2017

06.15 Received citation for Gold Medal in the category of Industrial Equipment at INPEX, Pittsburgh, USA (Oil Flushing Equipment for TBN Lubricating Sys.)

2015

03.23 Made an agreement for KOSEP(Korea South-East Power Co.) World Class-30

2014

04.15 Selected as the best small company to work for by SBC(Small & Medium Business Corporation)

2013

10.20 Approved as International Accreditation Organization for Flow Meter Calibration Facility

2012

03.15 Moving into new main office building and factory. Change company name as enesG worldwide

2011

09.28 Received presidential citation for excellence capital goods

08.31 Received a citation from Ministry of knowledge Economy (MKE)

05.28 Registered equipment repair company (KHNP, Q Class)

04.26 Registered supplier of valve actuator (KHNP, Q Class)

2010

12.20 Membership as an excellent small & medium business

12.14 Selected as a shared growth company from KHNP

11.03 Received a citation from MKE

10.19 Received a citation from SMBA

2009

12.21 Cooperating partner with KHNP sharing best

10.05 Registered in high-technology company (MKE)

08.26 Obtained a certificate of Inno-biz

2008

09.01 Selected as promising small & medium enterprises

07.31 Acquired certification of New Excellent Product (MKE)

05.07 Registered in New Technology in electric power (MKE)

2007

08.31 Registered in non destructive Inspection (Ministry of Science and Technology)
. Started integrity evaluation services

03.20 Obtained a parts and materials reliability certification (MKE)

2006

11.01 Registered eligible maintenance company (Korea South-East Power))

05.29 Registered in suppliers of KHNP (Governors, R Class)

02.17 Obtained ISO 14001 certificates (PE/HA)

02.01 Registered eligible maintenance company (Korea Western Power))

2005

07.06 Registered venture business (SMBA)
. Started hydraulic actuator business

2003

09.18 Certified enterprise institute from KOITA

2002

03.11 Established Enesco Co., Ltd

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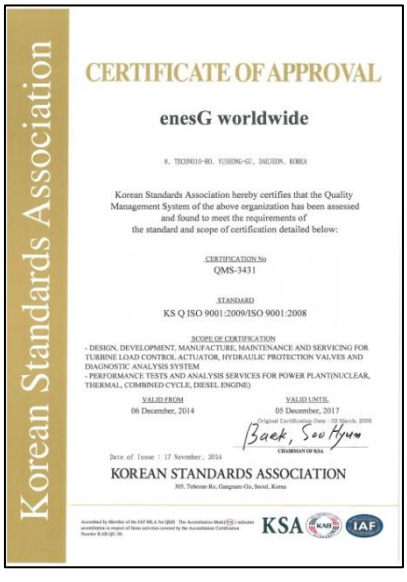
품질인증
Quality Assurance


Korean Standards Association

CERTIFICATE OF APPROVAL

enesG worldwide

8, TECHNO10-RO, YUSEONG-GU, DAEJEON, KOREA

Korean Standards Association hereby certifies that the Quality Management System of the above organization has been assessed and found to meet the requirements of the standard and scope of certification detailed below:

CERTIFICATION No
QMS-3431

STANDARD
KS Q ISO 9001:2009/ISO 9001:2008

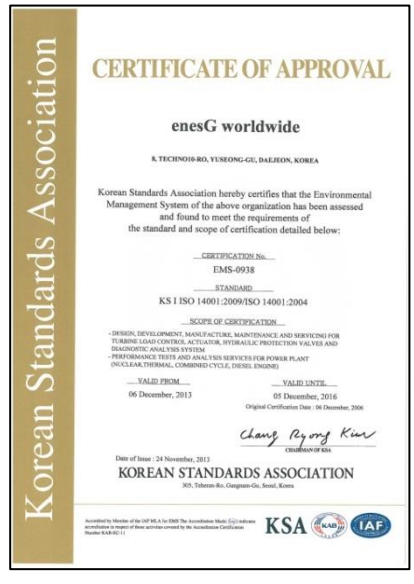
SCOPE OF CERTIFICATION
- DESIGN, DEVELOPMENT, MANUFACTURE, MAINTENANCE AND SERVICING FOR TURBINE LOAD CONTROL ACTUATOR, HYDRAULIC PROTECTION VALVES AND DIAGNOSTIC ANALYSIS SYSTEM
- PERFORMANCE TESTS AND ANALYSIS SERVICES FOR POWER PLANT(NUCLEAR, THERMAL, COMBINED CYCLE, DIESEL ENGINE)

VALID FROM 06 December, 2014 VALID UNTIL 05 December, 2017

Date of Issue : 17 November, 2014

KOREAN STANDARDS ASSOCIATION

KSA


Korean Standards Association

CERTIFICATE OF APPROVAL

enesG worldwide

8, TECHNO10-RO, YUSEONG-GU, DAEJEON, KOREA

Korean Standards Association hereby certifies that the Environmental Management System of the above organization has been assessed and found to meet the requirements of the standard and scope of certification detailed below:

CERTIFICATION No.
EMS-0938

STANDARD
KS I ISO 14001:2009/ISO 14001:2004

SCOPE OF CERTIFICATION
- DESIGN, DEVELOPMENT, MANUFACTURE, MAINTENANCE AND SERVICING FOR TURBINE LOAD CONTROL ACTUATOR, HYDRAULIC PROTECTION VALVES AND DIAGNOSTIC ANALYSIS SYSTEM
- PERFORMANCE TESTS AND ANALYSIS SERVICES FOR POWER PLANT (NUCLEAR, THERMAL, COMBINED CYCLE, DIESEL ENGINE)

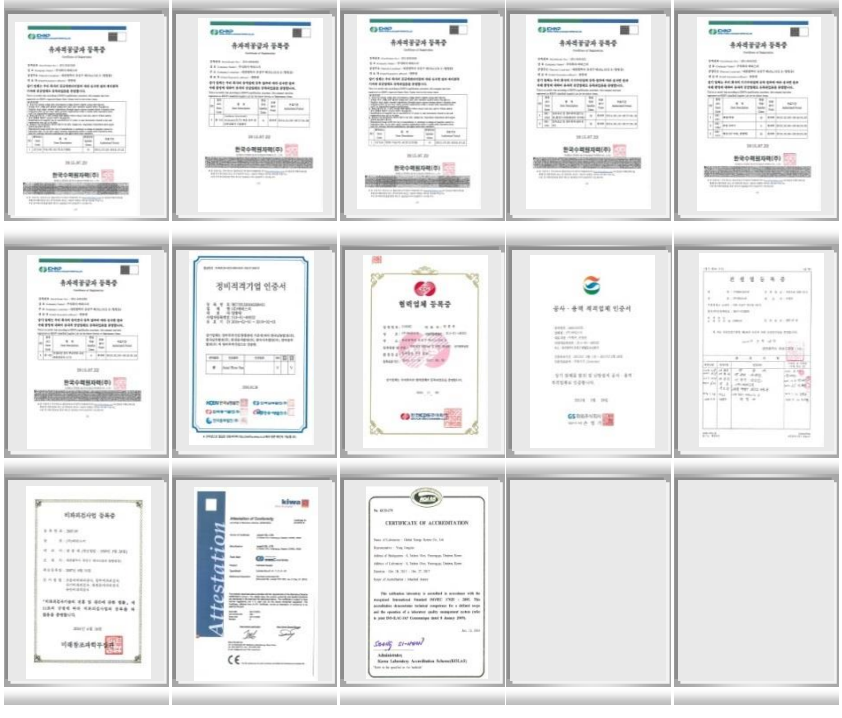
VALID FROM 06 December, 2013 VALID UNTIL 05 December, 2016

Original Certification Date : 06 December, 2006

Date of Issue : 24 November, 2013

KOREAN STANDARDS ASSOCIATION

KSA



ISO 9001

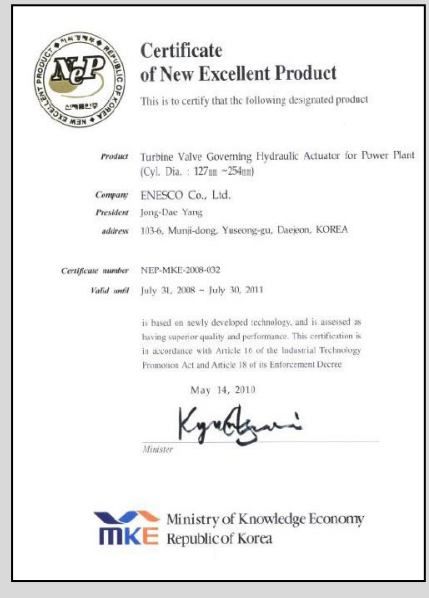
KS Q ISO 9001:2009/ISO 9001:2008
No. of Certification: QMS-3431
Issue Date : Nov. 6, 2014

ISO 14001

KS Q ISO 9001:KS I ISO 14001:2009/ISO 14001:2004
No. of Certification: EMS-0938
Issue Date : Dec. 6, 2013

Scope of Certification

DESIGN, DEVELOPMENT, MANUFACTURE, MAINTENANCE AND SERVICING FOR TURBINE LOAD CONTROL ACTUATOR, HYDRAULIC PROTECTION VAVLES AND DIAGNOSTIC ANALYSIS SYSTEM.
PERFORMANCE TESTS AND ANALYSIS SERVICES FOR POWER PLANT (NUCLEAR, THERMAL, COMBINED CYCLE, DIESEL ENGINE)


Certificate
of New Excellent Product

This is to certify that the following designated product

Product: Turbine Valve Governing Hydraulic Actuator for Power Plant (Cyl. Dia. : 127㎜ ~254㎜)
Company: ENESCO Co., Ltd.
President: Jong-Dae Yang
address: 103-6, Munji-dong, Yuseong-gu, Daejeon, KOREA

Certificate number: NEP-MKE-2008-032
Valid until: July 31, 2008 ~ July 30, 2011

is based on newly developed technology, and is assessed as having superior quality and performance. This certification is in accordance with Article 16 of the Industrial Technology Promotion Act and Article 18 of its Enforcement Decree

May 14, 2010

Minister

Ministry of Knowledge Economy
Republic of Korea

Overseas

- ✓ CE Attestation of Conformity (Hydraulic Actuator)
- ✓ CERTIFICATE OF ACCREDITATION (KOLAS)

Global Energy Service
enesG worldwide

품질인증
Quality Assurance

- **Received citation for Gold Medal in the category of Industrial Equipment at INPEX, Pittsburgh, USA (2017)**
- **Received presidential citation for excellent capital goods (2011)**

- Received a citation from Minister of Knowledge Economy (2012)
- Received a citation from Minister of Knowledge Economy (2010)
- Selected as a shared growth company from KHNP(2010)
- Membership as an excellent small & medium business (2010)
- Certification of management Innovation from SMBA (2010)
- Received a citation from KOSPO (2008)
- Received a citation from KOWEPO (2008)

Certification

- Electrical Works
- Member of the Korea Electrical Contractors Association
- Certificate of company affiliated Institute
- Member of the Korea International Trade Association
- Certificate of graduation for business incubator
- Registered Engineers Association
- Parts and materials reliability certificates
- Certificate of Non Destructive Inspection
- Certificate of construction industry
- Certificate of New Technology of Electric Power
- Certificate of New Excellent Product
- Certificate of Inno-biz
- Specifies the high-tech companies
- KOSEPS Core Corporation Promotion Program
- Promising small and Medium Enterprise by Daejeon Metropolitan City
- Certificate of Main-biz
- Small Business Innovation Members
- Corporate partners and share best
- Certificate of Venture Business
- KHNP registered suppliers[GOVERNORS]
- Turbine Governor Actuator / ETS system maintenance and reliability assessment techniques Contractor Registration
- Certificate of Turbine Cycle Performance Diagnostic Test
- Equipment repair company registration (A class)
- Equipment repair company registration(Q class)
- Certificate of eligible maintenance (Korea Western Power)
- Certificate of eligible maintenance (Korea South-East Power)
- Certificate of eligible maintenance (Korea East-West Power)
- Certificate of eligible maintenance (Korea Midland Power)
- Certificate of eligible maintenance (Korea Southern Power)