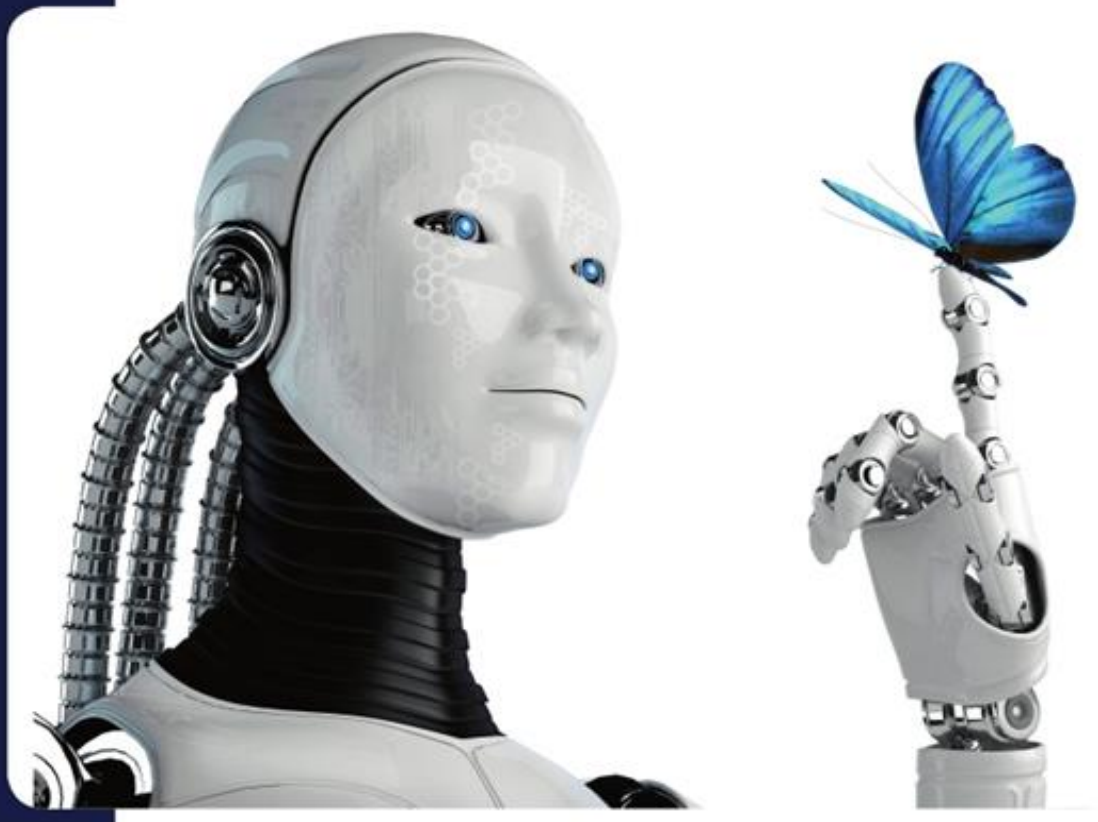
Newsletter
December, 2024

ICR



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Company Id No : 110111-243147
Tax & VAT Id No : 105-86-35114
Tel : (+82)2-6351-9001~5 / Fax : (+82)2-6351-9007
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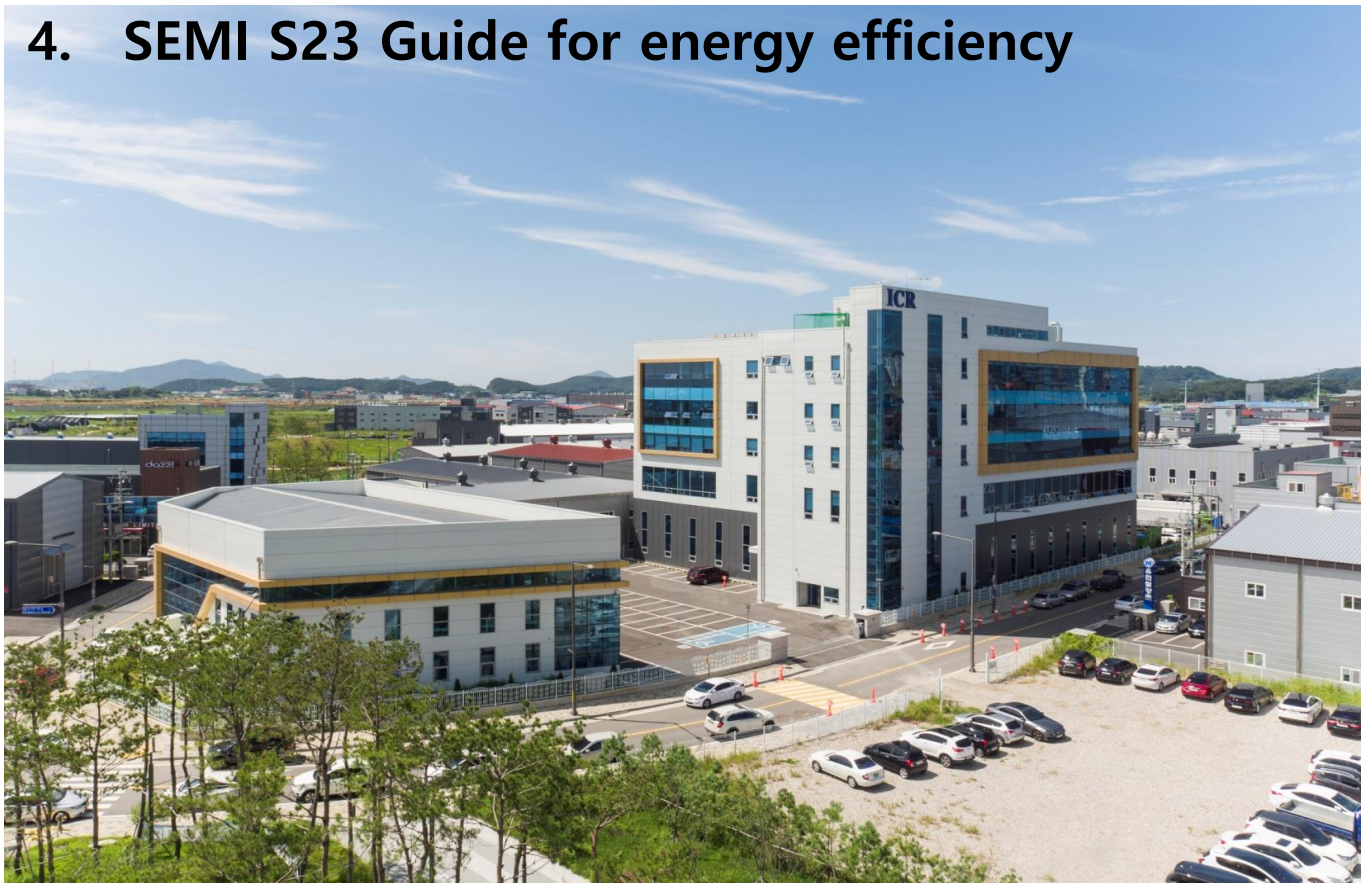
Hot Issue

1. MIL-STD-810 H Specification KOLAS New Registration
2. Explosion-Proof Certification Team Acquires IECEx CoPC
3. The Interconnection Between ESG and Management Systems
4. SEMI S23 Guide for energy efficiency



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MIL-STD-810 H Specification KOLAS New Registration

▣ **ICR** has registered a new standard with **KOLAS** and has **MIL-STD-810 H standard**.

제 KT652호

규격번호	제품 및 물질	규격명	시험범위	사업장	현장 시험
MIL-STD-810H:2019	방산 제품	Department of Defense test method standard for Test Method Standard for Environmental Engineering Considerations and Laboratory Tests 501.7 High Temperature 502.7 Low Temperature 503.7 Temperature Shock 506.6 Rain [Exception] Procedure II - Exaggeraterl Procedure III-Drip 507.6 Humidity 509.7 Salt Fog 514.8 Vibration [Exception] Procedure II - Loose Cargo Transportation Procedure III - Large Assembly Transportation 516.8 Shock [Exception] Procedure VII-Pendulum Impact Procedure VIII-Catapult Launch/Arrested Landing High Speed Craft - Duration 20 g, 5g 23ms 528.1 Mechanical Vibration of Shipboard Material (Type 1 - Environmental Vibration)	Temperature: (-65 ~ 175) ℃ Humidity: (20 ~ 95) % R.H. Temperature: 35 ℃ Salt solution concentration: 5 % NaCl pH: (6.5 ~ 7.2) Frequency: (5 ~ 2000) Hz Acceleration: (147 ~ 980) m/s² Duration: (6 ~ 11) ms	소재지	N

MIL-STD-810 H Specification KOLAS New Registration

▣ MIL-STD-810 H has been registered to ensure the reliability of the MIL test Customer service tests can be provided up to **MIL-STD-810 G and H versions.**

☎ Inquiries

Mobility Center/ Im, Dae-Hyun

T. 070-5083-7908 / terry.im@icrqa.com

Explosion-Proof Certification Team Acquires IECEx CoPC

▣ IECEx CoPC (Certification of Personnel Competencies)

IECEx CoPC is an **international qualification certification for explosion-proof professionals,** managed by IECEx. This certification demonstrates the ability to apply explosion-proof technologies suitable for industrial sites based on a clear understanding of IEC standards.

▣ ICR, Acquires IECEx CoPC

Engineers from the Ex Team of ICR successfully obtained the **IECEx CoPC Unit Ex 011 (Safety of Hydrogen System)** certification in October 2024. In response to the rapid growth of the hydrogen industry, domestic hydrogen associations are actively working on establishing relevant product certifications and standards based on IEC and ISO guidelines. ICR will continue to provide advanced technical services for the verification and explosion-proof assessment of hydrogen systems.

▣ Integrated Explosion-Proof Certification Services

With this achievement, ICR can now provide integrated explosion-proof certification and consulting services, ranging from **Hazardous Area Classification** (Unit Ex 002) to **Explosion-Proof Equipment Design and Installation** (Unit Ex 009) and **Safety of Hydrogen Equipment/Systems** (Unit Ex 011).

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Explosion-Proof Certification Team Acquires IECEx CoPC

▣ ICR, IECEx CoPC Certified Units

❖ Unit Ex 001

Apply basic principles of protection in explosive atmospheres

❖ Unit Ex 002

Perform classification of hazardous areas

❖ Unit Ex 009

Design electrical installations in explosive atmospheres

❖ Unit Ex 011

Basic knowledge of the safety of hydrogen systems

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Explosion-Proof Certification Team Acquires IECEx CoPC

▣ **ICR** as **IECEx ExTL** and Certification Body (**ExCB**), ICR provides comprehensive explosion-proof services, including **IECEx** issuance as well as **ATEX, CCC, TIIS, Tsmark, QAR** and **QAN.**

☎ Inquiries

Industrial Safety Center / Seo, Ho Young

T.070-5083-2639 / hys@icrqa.com

The Interconnection Between ESG and Management Systems

▣ The Interconnection Between ESG and Management

ESG has recently become an essential element in corporate management, and ISO management system standards such as **ISO 14001(environment), ISO 45001(safety),** and **ISO 37301(compliance management)** provide a strategic foundation for companies to achieve ESG goals.

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The Interconnection Between ESG and Management Systems

▣ Environmental Management Through ISO 14001

1) Environmental Protection and Sustainability

ISO 14001 supports an environmental management system aimed at minimizing environmental impact. Through this, companies can systematically manage and improve major environmental factors such as carbon emissions, waste generation, and energy consumption.

2) Connecting to ESG Goals

ISO 14001allows companies to concretely achieve the environmental goals of ESG, making it effective for setting and implementing objectives like carbon neutrality or renewable energy use.

This enhances a company's environmental performance and builds trust with stakeholders.

3) Practical Implementation Methods

- Set goals to reduce energy consumption,
- Implement water usage reduction programs,
- Strengthening recycling policies, etc.

The Interconnection Between ESG and Management Systems

▣ Enhancing Safety and Social Responsibility Through ISO 45001

1) Worker Safety and Health

ISO 45001 focuses on establishing a safety management system to ensure the safety and health of workers. By providing a safe working environment, companies can fulfill their social responsibilities and strengthen their response to the social aspects of ESG.

2) Alignment with ESG Goals

Creating a safe working environment and protecting workers' rights are crucial parts of the social component of ESG. Based on ISO 45001, companies can protect workers' health, prevent accidents, and increase employee satisfaction and corporate social credibility.

3) Practical Implementation Methods

- Regular assessments of risk factors,
- operating safety training programs for workers
- Improvement activities through worker participation, etc.

The Interconnection Between ESG and Management Systems

▣ Strengthening Compliance Management Through ISO 37301

1) Compliance and Ethical Management

ISO 37301 is a compliance management standard that helps companies establish systems for ethical and compliant management.

Through this, companies can prevent unethical behaviors and legal risks, thereby strengthening the governance aspect of ESG.

2) Alignment with ESG Goals

Ensuring corporate transparency and regulatory compliance are key elements of ESG governance. ISO 37301 supports companies in systematically meeting legal requirements, preventing corruption, and establishing a culture of compliance, helping them become trusted organizations.

3) Practical Implementation Methods

- Implementation of ethics training for management and workers,
- Clear disclosure of information,
- Transparent audit committees,
- Protection of shareholder rights, etc.

The Interconnection Between ESG and Management Systems

▣ Integrated Approach to Achieving ESG Goals

1) Establishing an Integrated Management System

By combining the requirements of **ISO 14001**, **ISO 45001**, and **ISO 37301**, an integrated management system can be established to provide a foundation for achieving ESG goals. This system supports the interaction of **environmental, safety,** and **compliance management** to enhance corporate sustainability.

2) Regular Performance Monitoring and Improvement

Setting performance indicators (KPIs) related to ESG goals, regularly monitoring them, and implementing necessary improvements are also effective strategies. This approach allows for measuring ESG performance and defining specific directions for improvement.

▣ ICR provides management system certification services related to these standards.

Integrating ESG with management systems is not merely about improving corporate image; it is an essential strategy for sustainable management. Consider actively using ISO standards to achieve ESG goals and strengthen long-term competitiveness.

☎ Inquiries

System Certification Center / Kim, Gi-Beom

T. 070-5083-2656 / kgb@icrqa.com

SEMI S23 Guide for energy efficiency

▣ SEMI S23

SEMI S23 is a **guide for measuring the usage of energy, utilities, and materials used in semiconductor manufacturing equipment**, then calculating the energy consumption in terms of values for annual energy usage analysis.

The analysis of energy use is focused on the stage of usage, with an emphasis on efficient use of utilities and materials to set targets for energy reduction.

▣ Modes and energy usage of the equipment

By monitoring equipment in various modes like process, standby, and idle modes, it measures the usage in each mode and observes annual consumption.

Mode	Process mode	Stanby mode	Idle mode	Sleep mode
Description	The equipment is performing operations	Equipment is in standby, ready for action	Idle mode where it is in a prepared state	Ready to respond to commands but in a sleep state
Usage Amount	Reflected	Reflected	Not reflected	Not reflected

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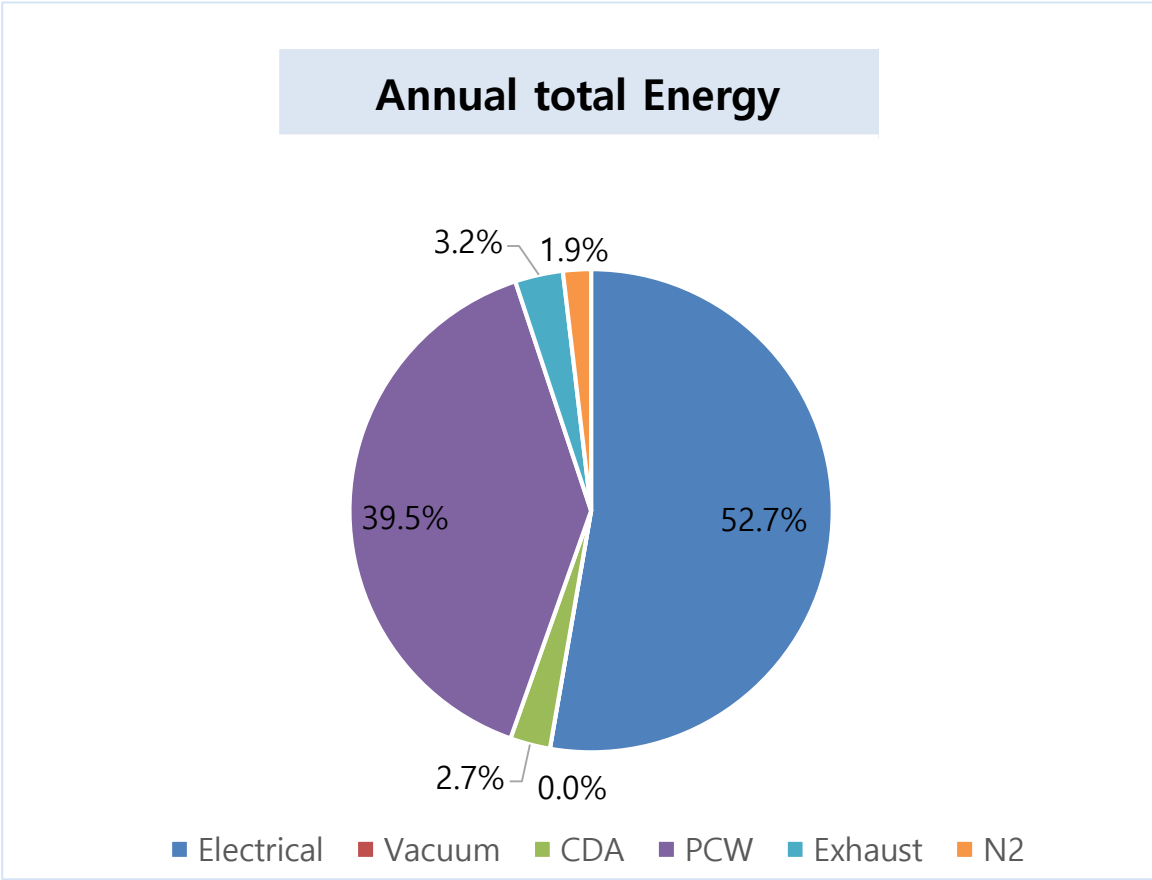
SEMI S23 Guide for energy efficiency

▣ Annual Energy Usage and Measurement

ICR measures utilities such as Electrical power, CDA, N2, PCW, Vacuum, and Exhaust, converts the usage of each utility into power values, and then allocates the energy usage according to the mode to analyze the total annual energy usage.



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SEMI S23 Guide for energy efficiency

▣ How to measure?

SEMI S23 tests are measured by setting data values corresponding to the table below, with points at the inlet and, if applicable, the outlet for each utility.

Mode	Measurement data
Process	When processing substrates : **Average of the measured values for the processing time of 10 substrates**
	When processing materials other than substrates : **Average of 30-minute measurements**
Stanby	**Average of 30-minute measurements for each parameter**

In order to conduct the test smoothly as described above, **semiconductor equipment manufacturers must provide** the following information.

1. Time-Based processing information

a. Single/batch wafer status
b. Number of Chamber
c. Wafer transport method
d. Wafer size
e. Number of wafers to be processed
f. Throughput

2. Using Utility information(flow rate, Pressure, Etc.)

a. Electrical power
b. CDA
c. N_2
d. PCW
e. Vacuum
f. Exhaust
g. Etc.

3. Fitting Size of Each Utility and Equipment Connection

SEMI S23 Guide for energy efficiency

▣ SEMI S23 Equipments and Test photos

<Anemometer>

<Liquid Flow Meter>

<Instrument Flow and Temperature Recorder>

<Power Meter>

Through these devices, we measure each utility on site and provide an **annual energy usage report** based on the measured values.

The **test period** takes an average of **1 to 4 days** depending on the test model and process time, and we provide the report within 2 to 3 weeks from the test completion date.

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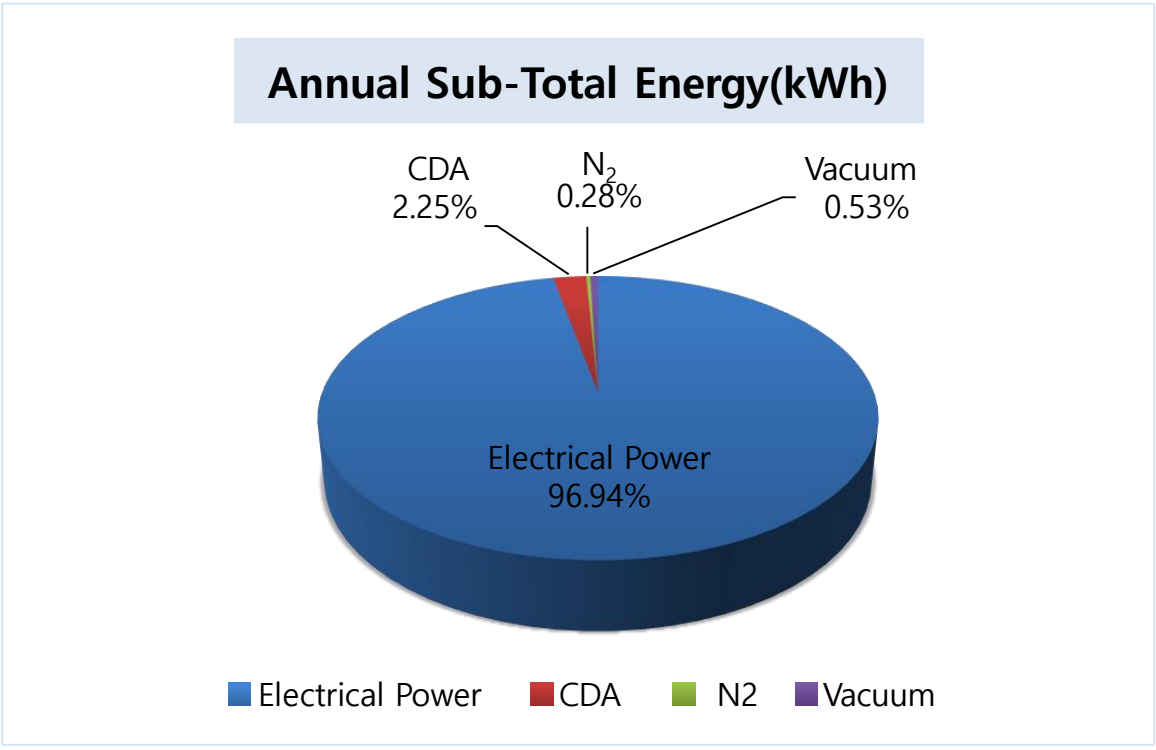
SEMI S23 Guide for energy efficiency

▣ Annual Energy Usage Report



- Conclusion and Recommend
- The energy consumed by the System was verified according to the procedure based on the SEMI S23-1021E2 and ISMT. The result showed the followings.
- It was revealed that the consumption ratio of three kind energy sources (Electricity, CDA, N2, Vacuum) consumed by the System is about the same.
- The total annual energy consumption was about 5,374.138 kWh.
- Assuming that 1 kWh will cost 1 USD, the annual running cost is calculated to be 5,374.138 USD.

SEMI S23 Guide for energy efficiency

▣ As shown in the above report, **ICR** provides you with the annual energy consumption and convert the energy consumption of the equipment into cost.

This will help you reduce unnecessary energy usage and promote efficient operation of the equipment by changing to low-cost alternative utilities.

☎ **Inquiries**

Industrial Safety Center / Kang, Gyeong Man

T.070-5083-2620 / kkm@icrqa.com