

Roca Argentina S.A

Roca Argentina is, proudly, the first company of the Roca Group to Certify the ISO 50001 Standard



Case Study Snapshot

Industry	Roca Argentina S. A
Product/Service	Manufacture of sanitary ware, taps, bathtubs and hot tubs
Location	Lanús, Buenos Aires, Argentina
Energy performance improvement percentage (over the improvement period)	We consider the improvement period from 2019 up to 2023; 25 % / years (average)
Total energy cost savings (over the improvement period)	USD 511.845,45
Cost to implement Energy Management System (EnMS)	USD 69.875
Total energy savings (over the improvement period)	5956,51MWh
Total CO₂-e emission reduction (over the improvement period)	2293,26 Metric Tons

Organization Profile / Business Case

Roca Argentina is a company of the Roca Group, a world leader in its segment, dedicated to the manufacture of Sanitary Ceramics, Bathtubs, whirlpools, faucets, toilet lids and seats and everything related to the bathroom.

The company considers that the protection of the environment and its energy performance are fundamental pillars and an essential and integrative aspect of business management to ensure its permanence over time.

Following the Group's guidelines, Roca Argentina certified the ISO 14001 Standard in 2013, starting this path towards improvement, continuing to focus on energy consumption. In 2017, based on the joint Resolution of the Ministries of Production and Energy and Mining 1E/2017, the company decided to join the program of the Secretariat of Energy Efficiency, being the beginning of the improvement of our energy performance. With the entry into this program, and throughout these years, various improvements related to energy consumption and GHG reduction were made, which we list below;

- 1- Replacement of lighting fixtures with LED technology throughout the plant.
- 2- Acquisition and use of renewable energy (wind energy): Replacement of up to 75% of non-renewable sources to power industrial processes, as well as the administrative and logistics system.
- 3- An energy measurement and monitoring system was incorporated: Power Monitoring Expert (PEM). This program constantly measures consumption and our objective, independently of verifying it, is to detect equipment consumption peaks and establish action plans to eliminate them and thus improve consumption and commercial agreements with energy suppliers.
- 4- Changes were made to the latest technology compressed air generation equipment, thus being able to implement the Sigma Air Manager system, which is our control project that is the subject of this study. Before the incorporation

of these technologies, energy consumption for the generation of compressed air was 4,422,910 kWh. Currently, there is an annual energy saving of 25% and a CO2 reduction of 2,293.26 metric tons.

5- Automation and ON/OFF efficiencies with the incorporation of PLC in machinery and equipment.

6-Reinjection of hot air in the oven burner area. The reuse of this air that was previously released into the atmosphere made it possible to reduce gas consumption in the plant ovens.

7-Development of a purchasing procedure that establishes the minimum requirements that must be met when purchasing a good or contracting a service, guaranteeing that the selection made takes into account the best and greatest energy performance.

8 – With the incorporation of the PEM system it also allows us to verify and compare daily consumption vs tons of material for the manufacture of our product, thus being able to evaluate our daily energy performance and by sectors, allowing us to correct possible deviations.

Over the years, the Comprehensive Management System continues to consolidate, a fact that demonstrates and generates Roca Argentina's commitment to continue caring for the environment and natural resources every day, focusing mainly on minimizing the carbon footprint generated by our productive processes, understanding that this commitment is directly related to reversing the impact of our commercial activity on climate change in order to guarantee a sustainable company for future generations.

“We strengthen our reputation and commitment to sustainability that drives us to continue promoting the culture of continuous improvement.” Christian Farías, Project and Investment Manager.

Business Benefits

Our post-implementation experience of the Integrated Management System, tools and energy programs is highly positive since it was possible to reduce electrical energy consumption by 25% for the generation of compressed air used for our production process. Furthermore, the implementation of these standards has had a very positive impact, both in the Headquarters and in our client portfolio, as this subsidiary was the first to implement it. We certified for the first time our Management System based on ISO 50001:2018 Standards on 05/16/2022, establishing the manufacturing of Sanitary Articles, Taps, Bathtubs and whirlpools. During 2023, we carried out a maintenance audit with positive results.

This certification has been of great support to keep the Energy Management System alive and active in pursuit of continuous improvement.

One of the main benefits of implementing ISO 50001 that we were able to notice was that our staff not only incorporated energy management awareness within the organization, but were also able to implement this knowledge in their daily lives.

The incorporation of technologies such as Power Monitoring Expert (PEM) and the Sigma Air Manager (SAM) were very beneficial, allowing real-time information on equipment consumption, detecting peaks in consumption, analyzing the causes and implementing improvements.

The projects mentioned in the previous point were very important in reducing energy consumption and GHGs, allowing us to be aligned with the values of the Roca Group, also being the first company within the Group to achieve ISO Standard certification. 50001.

Plan

Roca has assumed a strong commitment to caring for the environment. The Company is an active participant in a foundation known as WE ARE WATER, with a global impact, to promote awareness on best use of natural resources.



This commitment assumed by the Group is reflected in the approval of all projects related to caring for the environment, improving energy performance and reducing greenhouse gas emissions.

In 2017, the company decided to join a program based on Joint Resolution 1E/2017 of Large Electro-Intensive Users, of the Secretary of Energy and Strategic Planning of the Ministry of Energy and Mining, dependent on the Ministries of Production and Energy and Mining, which established that the beneficiary companies should present an Energy Review whose content was detailed in the IRAM-ISO 50.001:2011 Standard.

This was a starting point that allowed us to carry out an exhaustive study of our facilities, energy consumption and opportunities for improvement.

From there we became aware of the importance of our consumption and the need to start managing Energy. These backgrounds lead us to work on the implementation of a management system based on the ISO 50001 standard. As a result of our work and commitment, the Secretariat of Energy Efficiency distinguished us by inviting us to be part of the first energy efficiency learning network organized by the Secretariat together with the German Cooperation Agency GIZ, the CONUEE of Mexico and the SENER, Secretary of Energy. from Mexico, along with 12 other local companies (Volkswagen Argentina, Celulosa Campana, Molinos, BGH, Acindar Aceromital, Ricardo Almarand Sons, Bimbo, Sturam SA, Packall SRL, Fibercord and Arsat)

After working for more than a year together with company representatives, where each one shared their experiences and realities within their companies, analyzing the different problems to implement an Energy Management system and receiving guidance from expert technicians, we managed to improve our energy performance. Throughout this year of work, we have 6 workshops of 2 days each, located at the headquarters of one of the participating companies.

The Secretary of Energy of the Nation and the organizers hired external companies to carry out field work in each of the companies in order to establish a baseline regarding the initial situation in each of the companies.

In our case, the initial evaluation indicated a 29% implementation of the ISO 50001 standard and our goal was to reach 60% at the end of the workshops with an improvement objective of achieving a reduction in electrical consumption by 5% and thermal consumption. (gas) by 4%.

We reached the last day of the network meeting the committed consumption reduction objectives and with 80% implementation of the Energy Management System. During the implementation of the Standard the following points were made:

ISO 50001 Energy Management System – Case Study

2024

Argentina

-Preparation of an Integrated Management System Manual that covers not only the Environmental aspect ISO 14001 but also Occupational Safety and Health at Work ISO 45001, Energy Management ISO 50001 and Quality Management ISO 9001.

-Preparation of a new Policy with the commitment of Management.

-Develop a procedure to guarantee the acquisition of more energy-efficient products or services.

-A team was formed and trained with representatives from the different sectors to be able to implement and train personnel by defining the USES (significant uses of energy) as well as the indicators and the Baseline.

-A panel of indicators was created so that each sector manager can complete their energy consumption daily by comparing it with the tons of pieces processed and be able to detect possible deviations in time (Kwh/Kg pieces).(Figure 1)

-Annual objectives are set in order to achieve better energy performance, focusing on reducing greenhouse gas emissions.

“We raise awareness among our collaborators about the importance of taking care of energy.” Cesar Gonzalez Human resources Manager.

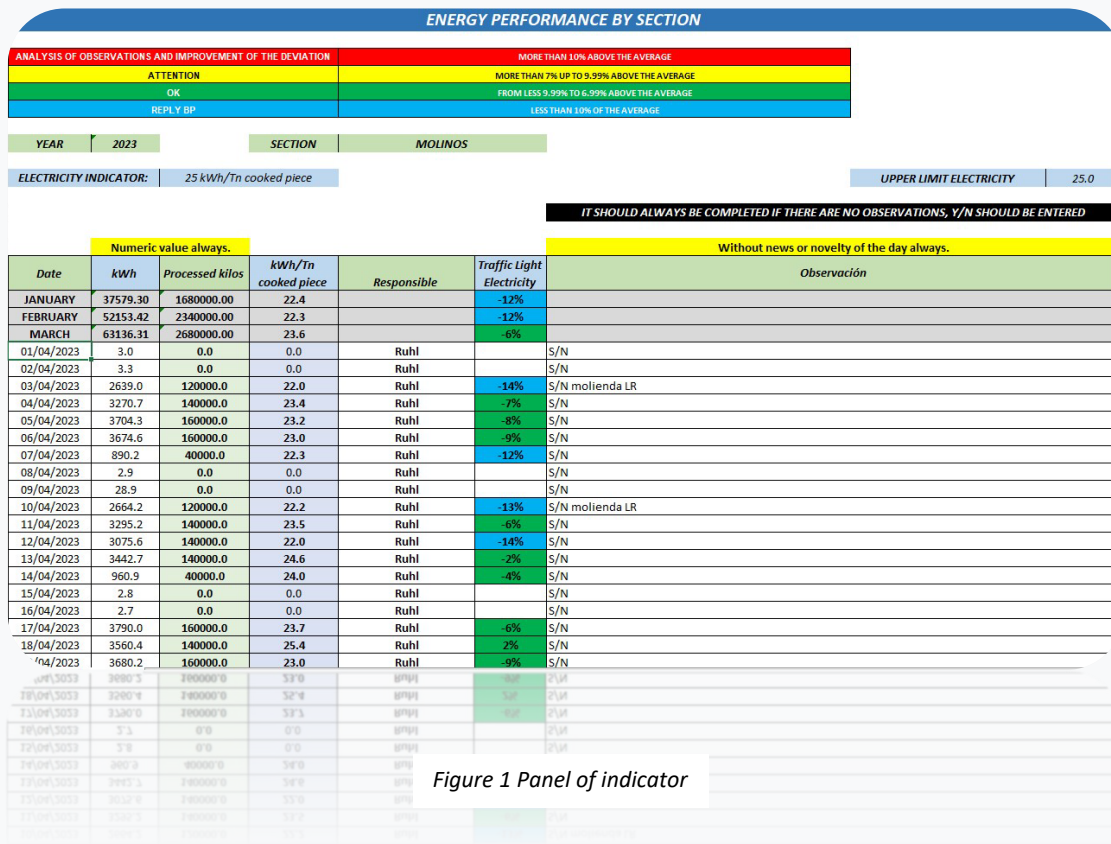


Figure 1 Panel of indicator

Cost to implement	Cost to implement (\$USD)
Internal Staff time to develop and implement the EnMS	\$ 7.200,00
Internal staff time to prepare for external audit	\$ 575,00
Additional monitoring and metering equipment installed to meet EnMS requirements	\$ 15.500,00
Third party audit costs	\$ 6.600,00
Technical assistance (e.g., hired consultants to assist with EnMS implementation)	\$ 40.000,00
Other (e.g., internal communications)	
Total	\$ 69.875,00

Figure 2 Cost to implement Energy Management System (EnMS)

Do, Check, and Act

For the implementation of the ISO 50001 Standard, a multidisciplinary committee (Figure 3) was formed made up of the Human Resources Management, Production Management, EHS, Investments, Maintenance and Purchasing advised by a consulting firm with experience in the subject.



Figure 3 Energy Committee Letterhead

Next, we will state some highlights of the process;

- The energy review carried out during the learning network was the beginning of the Standard implementation process and allowed us to identify the company's greatest electrical use. This was the air compressor room.
- The next step was to carry out an energy audit of the compressed air system.
- As a result of this audit, and with the commitment of Senior Management that guaranteed the necessary resources, the comprehensive project was executed, which included the replacement of the existing compressors with more modern and higher efficiency equipment. In addition to the installation of the SAM 4.0 management system, from Kaeser (supplier), which allows complete monitoring of the compressed air station. For this purpose, service data is recorded, archived and displayed. Detailed monitoring of station parameters allows faults to be detected in time, which can be repaired immediately.

It should be noted that SAM 4.0 provides active support for energy management according to ISO 50001. The SAM identifies the state of use and stops of the compressors and can switch service from one piece of equipment to another automatically or manually. The necessary characteristic data is generated and evaluated automatically.

According to the results of the audit, our compressor room had a total generation of 120.06 m³/min, with a specific power of 8.34 Kw/m³/min.

-In 2019, the 1st stage of the initial project was completed, leaving the room with a total Generation of 148.06 m³/min, and a specific power of 6.50 to 6.11 Kw/m³/min. This generated a total saving of 22 to 27% in energy compared to the initial situation, during the last 5 years.

This implies that, comparing the original compressor room, in order to generate 31,486,257 Nm³ of air, 4,422 Mw/hr were needed, with the new room in 2023, only 4,128 MW/hr was needed to generate 40,548,878 Nm³.

	Original State	2019	2020	2021	2022	2023
Total generation (m³/min)	120,06	148,06	148,06	148,06	148,06	148,06
Power Consumption (Kw/h)	4.422.910	3.125.283	2.667.009	3.736.235	3.836.070	4.128.259
Specific Power (kw/m³/min)	8,34	6,5	6,4	6,12	6,11	6,11
Compressed air (Nm³)	31.486.257	28.848.770	25.003.206	36.629.752	37.670.086	40.548.679
Savings Percentage		22%	23%	27%	27%	27%
Saving(Kw/h)		884.695,61	808.436,98	1.355.300,84	1.400.071,52	1.508.007,50
Cost €/KWH		0,0753	0,0753	0,0692	0,0884	0,0884

Figure 4 Energy Saving

Both SAM and PEM generate daily reports on energy consumption that are analyzed by those responsible for each sector who in turn upload this information to the indicator board and compare consumption with the kilos of processed parts, allowing immediate action to be taken in the event of possible deviations



Figure 5 Control Panels

Transparency

The general announcement was made through the Roca Argentina website, and we also have a Comprehensive Management Policy possible for anyone and from any field.

The Policy of Roca Argentina S.A considers that the quality of its products, the satisfaction of its customers, as well as the occupational safety and health of our collaborators, environmental protection and energy performance are essential and integrative aspects of business management in order to ensure its permanence. Over time in a sustainable manner.

We are committed to the occupational health and safety of our collaborators and to generating products that satisfy customer requirements, benefit the community and preserve the environment and energy resources.

Communication to collaborators with topics related to the Integrated Management System is done through advertisements in showcases, circulars, memos, emails, talks and training or newsletters.

For their part, staff can send their comments or concerns using the QR code to report improvements in their position.

Some examples are shown below:


POLÍTICA DEL SISTEMA INTEGRADO DE GESTIÓN

ROCA ARGENTINA S.A para sus actividades de desarrollo, fabricación y venta de equipamiento sanitario considera que la calidad de sus productos, la satisfacción de sus clientes, así como seguridad y salud ocupacional de nuestros colaboradores, la protección del ambiente y el desempeño energético son aspectos esenciales e integradores de la gestión empresarial con el fin de asegurar su permanencia en el tiempo de manera sostenible.

Estamos comprometidos con la seguridad y salud ocupacional de nuestros colaboradores y con generar productos que satisfagan los requerimientos de los clientes, beneficien a la comunidad y preserven el ambiente y los recursos energéticos; y para ellos asumimos los compromisos de:

- Cumplir con todas las leyes, regulaciones y normativas referidas a la calidad en el proceso productivo y producto final, la salud ocupacional, la protección del ambiente y el desempeño energético y todos los otros requerimientos que la organización suscriba.
- Asegurar la disponibilidad de la información y recursos necesarios para lograr los objetivos y metas de calidad de producto, seguridad y salud ocupacional, preservación del ambiente y mejora del desempeño energético.
- Mejorar continuamente el desempeño de la seguridad y salud ocupacional para prevenir la ocurrencia de lesiones y enfermedades ocupacionales identificando peligros y trabajando permanentemente para eliminarlos y reducir los riesgos.
- Apoyar y promover la mejora continua del sistema integrado de gestión, incluyendo calidad, salud y seguridad ocupacional, ambiente y energía.
- Promover la participación activa de nuestros colaboradores y demás partes interesadas en el desarrollo de las actividades que contempla nuestro sistema integrado de gestión.
- Salvaguardar los recursos naturales previniendo la contaminación a través del control y reducción de los impactos ambientales, la mejora de la calidad de nuestros procesos y productos poniendo a disposición los medios humanos y recursos materiales necesarios para lograrlos.
- Trabajar para disminuir el uso de recursos no renovables, favorecer el reciclado y reutilización de los mismos y desarrollar nuestros proyectos y productos buscando alternativas que garanticen la evolución permanente de nuestra empresa hacia mejores niveles y estándares de sus actividades.
- Apoyar la adquisición de productos, bienes y servicios y el diseño de soluciones para lograr un mejor desempeño energético y ambiental, cuidando la salud ocupacional de nuestros colaboradores. Del mismo modo, busca incrementar el uso de energías limpias y amigables con el medio ambiente.
- Apoyar las actividades de diseño que consideren la mejora de nuestro desempeño energético.
- Definir el marco de referencia para el establecimiento de los objetivos de nuestro sistema integrado de gestión que conducen a su mejora continua.

Estos compromisos representan la firme convicción de ROCA ARGENTINA S.A de que la calidad de sus procesos y productos, la problemática ambiental, las lesiones laborales y enfermedades profesionales y la gestión energética son monitoreadas y mejoradas en forma continua a través de un sistema integrado de gestión responsable que involucra a toda la organización.


Jorge Mereno
Gerente General
ROCA ARGENTINA S.A.

Rev. 4; 29 de Diciembre 2023



USOS SIGNIFICATIVOS DE LAS ENERGÍAS.

Consumo de energía eléctrica en ventiladores de calefacción.	Consumo de energía eléctrica en luminarias.	Consumo de energía eléctrica en aire comprimido.	Consumo de gas natural en calefacción.
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EL USO EFICIENTE DE LA ENERGÍA PERMITIRÁ REDUCIR LAS EMISIONES DE GASES DE EFECTO INVERNADERO.

CONTROLA EL ENCENDIDO DE LOS VENTILADORES. APAGALOS CUANDO NO LO NECESITES.	APAGA LAS LUCES DEL SECTOR CUANDO TE VAYAS.	NO DEJES ABIERTO EL AIRE COMPRIMIDO. AVISA DE INMEDIATO SI DETECTAS UNA FUGA.
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CUIDAR LAS ENERGÍAS DEPENDE DE NOSOTROS!

NORMAS BÁSICAS DE SEGURIDAD



TU COMPROMISO ES CLAVE.

AYUDANOS A MEJORAR LA SEGURIDAD, EL AMBIENTE Y LA PRODUCTIVIDAD. REPORTA MEJORAS ESCANEANDO ESTE QR.





Technological evolution.



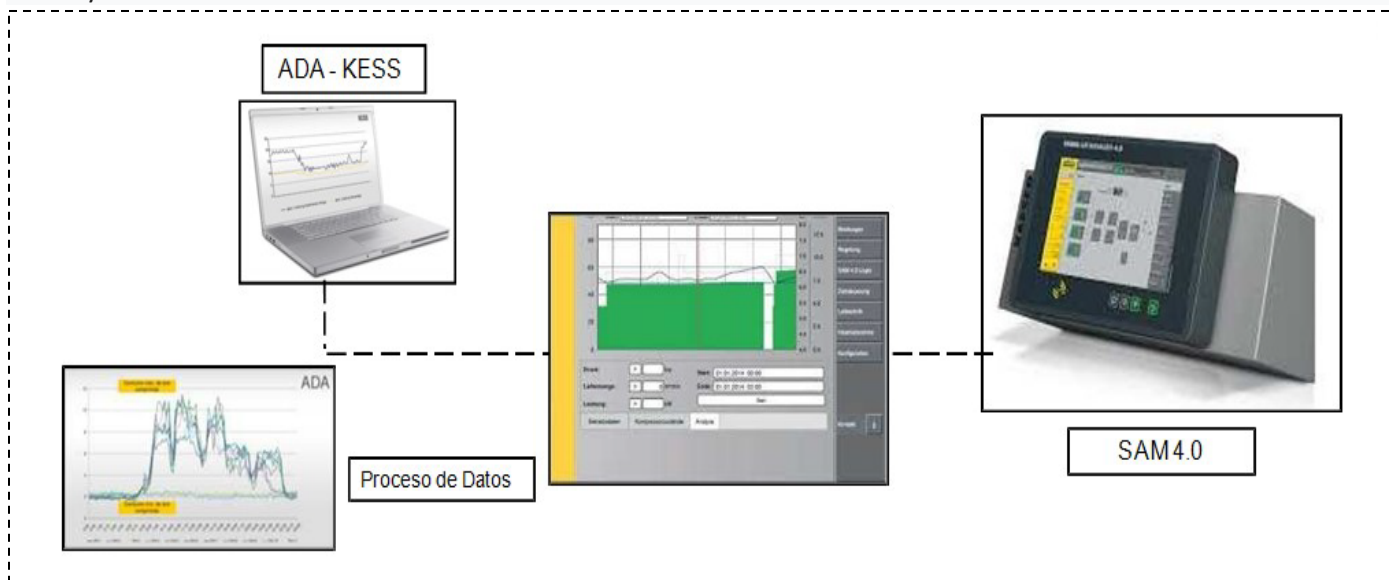
What We Can Do Differently

During these years of implementation of the ISO 50001 Standard we had great learning and challenges, in which we highlight the commitment assumed by all collaborators, who, based on the measurement system acquired (SAM 4.0), were able to review consumption daily, analyze it and take improvement actions quickly. To achieve the proposed objectives, it was essential that all employees of the organization participate in the project. This great teamwork allows us to think about the future and propose new improvements in our energy performance, such as those we share below as an example.

Better the internal installation of the factory to unify the pressures and be able to lower the generation pressure by 1 bar. This would generate a saving of 5.5% in the electrical consumption of the compressor room.

Another project that we will undertake is the installation of flow meters in all equipment that consumes gas in order to monitor them, allowing us to establish strategies to achieve a reduction in consumption and more efficient operation of the equipment.

SAM System



The Energy Management Leadership Awards is an international competition that recognizes leading organizations for sharing high-quality, replicable descriptions of their ISO 50001 implementation and certification experiences. The Clean Energy Ministerial (CEM) began offering these Awards in 2016. For more information, please visit www.cleanenergyministerial.org/EMAwards.