Be part of a greener future

CARBON FOOTPRINT COMPARISON REPORT 2010

www.fshlocking.com.au

Who says size doesn't matter?

It's About Reducing Your Carbon Footprint...

Electromagnetic Locking Devices are used on all types of doors and are usually installed in conjunction with access control or intercom systems. This report compares the new and uniquely engineered locking solution MEM2400 with a Conventional 600kg Electromagnetic Locking Device.

Conventional 600kg Electromagnetic Locking Devices are large, extremely heavy and have high power consumption in operation.

The FSH product MEM2400 is different.

It is 75% smaller and has just 10% of the weight of a traditional Electromagnetic Lock, without compromising any of the security or safety requirements vital for this kind of device. In fact it actually enhances the security requirements with its patented "Early Warning" alarm and long distance backlight features.

This report compares the new MEM2400 and a Conventional 600kg Electromagnetic Locking Device on carbon footprint and total energy consumption on both a raw material and finished product level.

ACTUAL SIZE
Conventional Electromagnetic Lock 600kg Holding Force

ACTUAL SIZE
MEM Mechanical Electro Magnetic Lock 680kg Holding Force

NOTE: The physical size, quantity and types of raw materials used to manufacture a Conventional 600kg Electromagnetic Locking Device are comparable or in fact identical, to other similar performance magnetic locks on the market, including PADDE, KABA, Gianni, ACSS, Securitron and Schlage.

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MEM Devices

Securing The Pathway To Environmental Change

FSH & Environmental Sustainability

FSH shares with the world a growing concern for the future of our global environment. It is important that all industries are aware of the environmental impact of the manufacture and use of their products. This implies a need to reinvent and/or improve existing products and the manufacturing technologies used to produce them.

With this in mind FSH, a leading company in Electric and Electronic Locking Solutions, has taken the initiative and created a new electromechanical locking device, the MEM2400. Primary objectives in the development of this device were to meet the highest safety and security standards, and to produce a more environmentally sustainable product.

Calculations

Based on one single unit of each device.

By breaking down each product into their basic elements (aluminium, iron, copper, epoxy and plastic), and aided by the use of a state-of-the-art, 3-D CAD program a comparison was made of the environmental impact of the MEM2400 and the Conventional 600kg Electromagnetic Locking Device. This developed a picture of how both products affect the environment in terms of their carbon footprint, and the total amount of energy consumed to manufacture the devices.

The comparison considered the following factors:

- raw material production
- manufacturing of the device

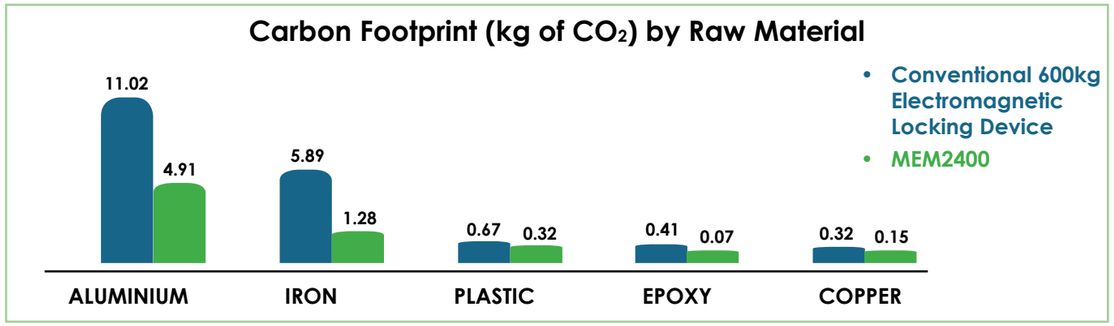
Live Project Australia

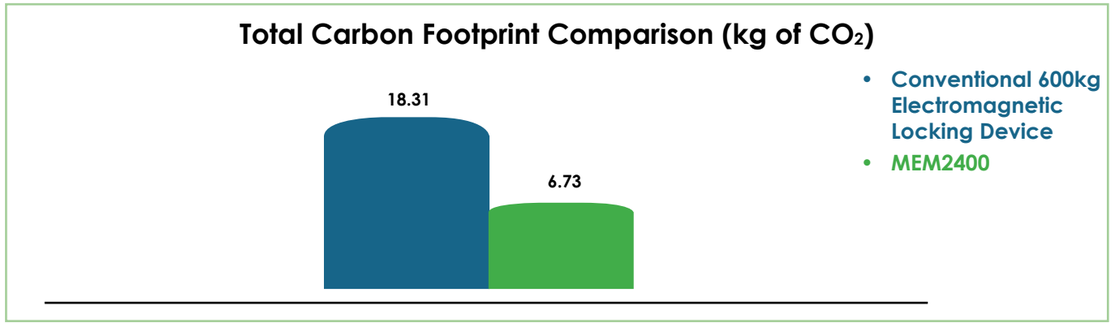
We have then applied the calculations to a live project:

The Actew AGL Building in Canberra, A.C.T. Calculations were made of the carbon footprint, energy consumption and standby battery capacity in the manufacturing process as well as the annual energy savings and standby battery capacity offered by installing MEM2400 devices rather than Conventional 600kg Electromagnetic Locking Device.

Analysis of Carbon Footprint (Manufacturing)

The tables and charts below visually and numerically depict carbon emissions values and the total energy consumed by both products during the manufacturing process. These values represent the carbon emissions released, in kg of CO2, when producing a single unit as a by-product during the manufacture of both raw materials and finished products.

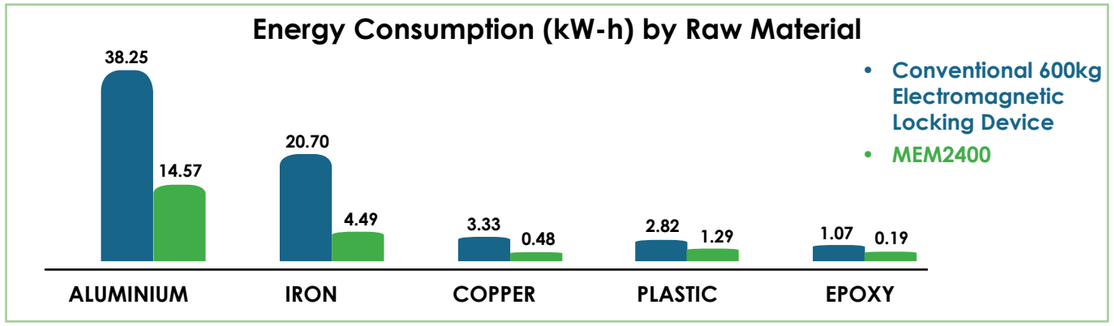


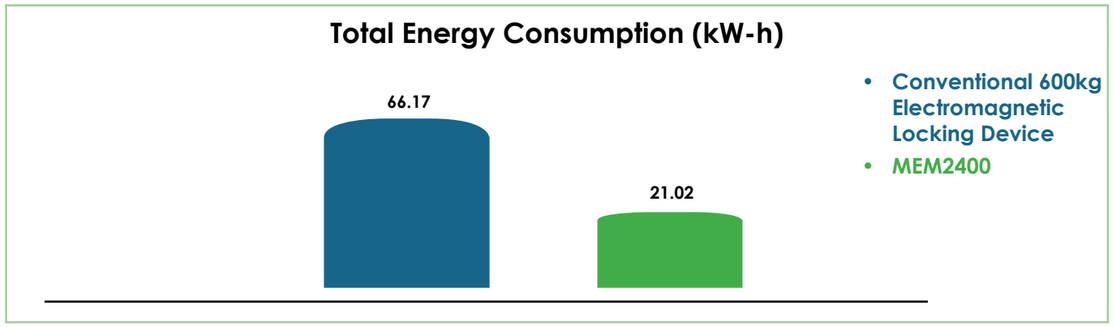


MATERIAL	CONVENTIONAL 600kg ELECTROMAGNETIC LOCKING DEVICE	MEM2400	SAVINGS	PERCENTAGE REDUCTION
ALUMINIUM	11.02	4.91		
IRON	5.89	1.28		
PLASTIC	0.67	0.32		
EPOXY	0.41	0.07		
COPPER	0.32	0.15		
TOTAL (kg of CO_2)	18.31 kg of CO_2	6.73 kg of CO_2	11.58 kg of CO_2	63%

Analysis of Energy Consumption (Manufacturing)

These tables and charts depict the total energy consumed in a single unit, measured in kW-h throughout the manufacturing process of a Conventional 600kg Electromagnetic Locking Device and a MEM2400.





MATERIAL	CONVENTIONAL 600kg ELECTROMAGNETIC LOCKING DEVICE	MEM2400	SAVINGS	PERCENTAGE REDUCTION
ALUMINIUM	38.25	14.57		
IRON	20.70	4.49		
COPPER	3.33	0.48		
PLASTIC	2.82	1.29		
EPOXY	1.07	0.19		
TOTAL kW-h	66.17 kW-h	21.02 kW-h	45.15 kW-h	68%

Computations

Carbon Footprint (Manufacturing)

Comparing the manufacturing carbon emissions results indicates that the MEM2400 (with 6.73kg of CO_2) has a far ''greener footprint'' than the Conventional 600kg Electromagnetic Locking Device (with 18.31kg of CO_2). The 11.58kg difference in the amount of CO_2 produced as a by-product leads to a 63% reduction in carbon emissions. This confirms the MEM2400 as an environmentally superior product.

Energy Consumption (Manufacturing)

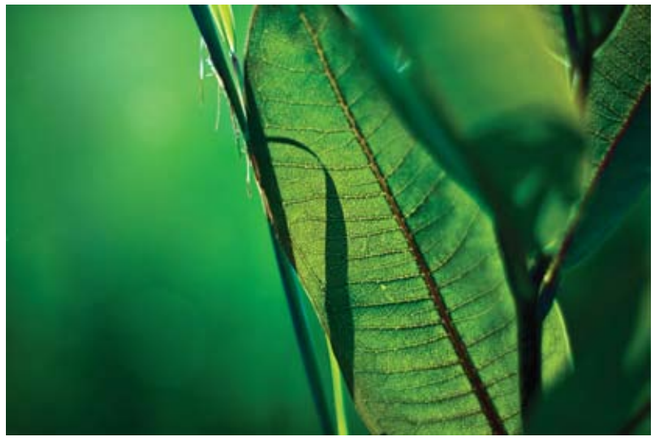
With a total energy consumption level of 21 kW-h, the MEM2400 consumes 68% less energy during manufacturing compared to the 66kW-h of the Conventional 600kg Electromagnetic Locking Device. This calculation is derived by comparing all the materials needed to produce the two products.

The MEM2400 Environmental Advantage

The results of the carbon footprint analysis and comparison of the Conventional 600kg Electromagnetic Locking Device and the MEM2400 confirms with certainty that the MEM2400 has a significantly lower impact on the environment.

The CO_2 emissions and the total energy consumed to produce the MEM2400 is significantly lower than the Conventional 600kg Electromagnetic Locking Device due to a number of factors:

- Improvement in design (smaller and more compact)
- Lesser quantities of material used (Conventional 600kg Electromagnetic Locking Device is far greater in physical size and weight)
- More efficient methods of production (modern technologies used to manufacture and assemble the product e.g. CNC machinery)



Live Project, Australian Capital Territory

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Implementation of the Live Project

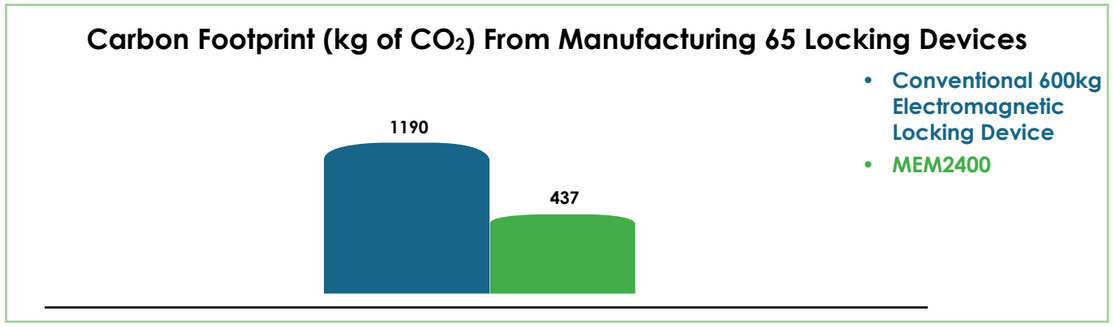
In February 2010, the security consultant agreed to change many of the security locking devices on the project from Conventional 600kg Electromagnetic Locking Device to the MEM2400. A total of 65 devices are installed on the project.

Based on our previous calculations of carbon footprint and energy consumption along with standby battery size and annual electricity consumption in operation, the computations indicate the following.

NOTE: The calculations are based on the devices being powered up 24/7.

Analysis of Carbon Footprint (Manufacturing)

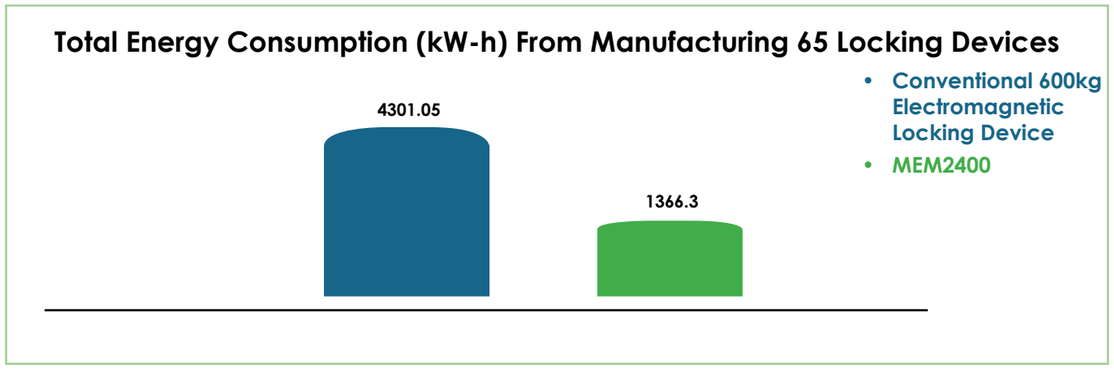
The tables and charts below, visually and numerically depict the amount of carbon emissions generated in manufacturing 65 Conventional 600kg Electromagnetic Locking Devices compared to 65 MEM2400 devices.



CARBON FOOTPRINT (MANUFACTURING 65 LOCKS)	CONVENTIONAL 600kg ELECTROMAGNETIC LOCKING DEVICE	MEM2400	SAVINGS	PERCENTAGE REDUCTION
	1190 kg of CO_2	437 kg of CO_2	753 kg of CO_2	63%

Analysis of Energy Consumption (Manufacturing)

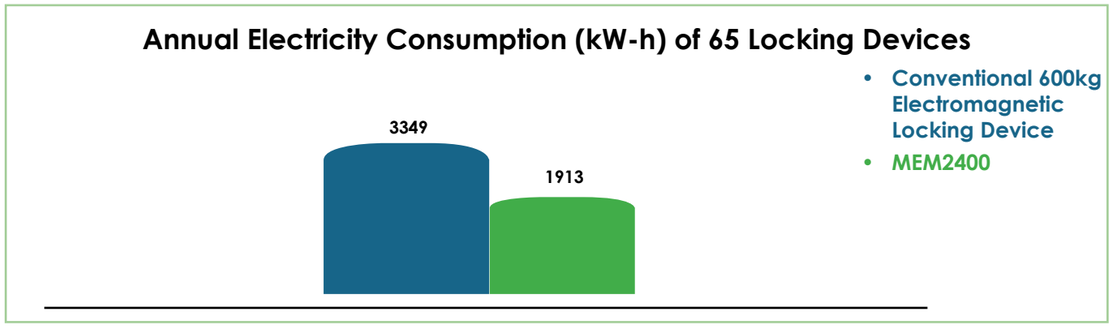
These tables and charts depict a comparison of the total energy consumed during manufacturing process of 65 Conventional 600kg Electromagnetic Locking Device compared to 65 MEM2400 devices, measured in kW-h.



ENERGY CONSUMPTION (MANUFACTURING 65 LOCKS)	CONVENTIONAL 600kg ELECTROMAGNETIC LOCKING DEVICE	MEM2400	SAVINGS	PERCENTAGE REDUCTION
	4301.05 kW-h	1366.3 kW-h	2934.75 kW-h	68%

Analysis of Electricity Consumption in Operation

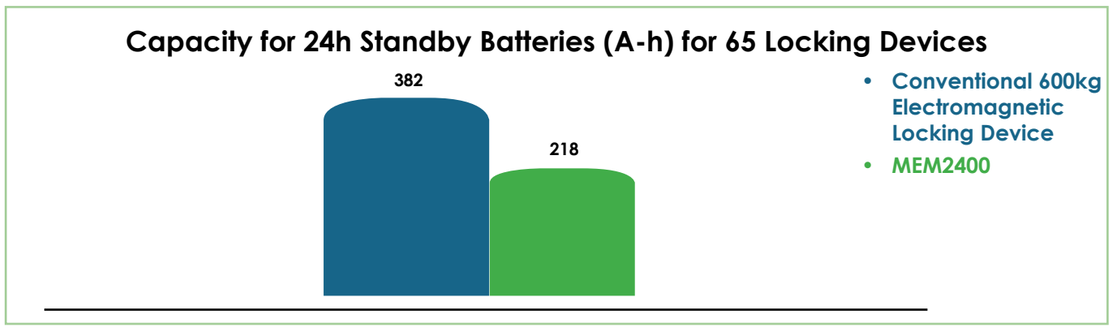
The chart and table below compares the **annual electricity** usage of 65 Conventional 600kg Electromagnetic Locking Devices compared to that of 65 MEM2400 devices in operation onsite running on 24 Volt DC.



ELECTRICITY CONSUMPTION (ANNUAL FIGURES)	CONVENTIONAL 600kg ELECTROMAGNETIC LOCKING DEVICE	MEM2400	SAVINGS	PERCENTAGE REDUCTION
	3349 kW-h	1913 kW-h	1436 kW-h	43%

Standby Battery Comparison (24hr Standby)

Based on the savings in electricity (power) consumption provided by the MEM2400 devices, the standby batteries required to provide 24hr locking in the event of a power outage, are reduced considerably in physical size and capacity.



CAPACITY FOR STANDBY BATTERIES (24HR BASIS)	CONVENTIONAL 600kg ELECTROMAGNETIC LOCKING DEVICE	MEM2400	SAVINGS	PERCENTAGE REDUCTION
	382 A-h	218 A-h	164 A-h	43%

Calculate your Project

Analysis of Carbon Footprint (Manufacture)

	NUMBER	KG OF CO_2	TOTAL KG OF CO_2	TOTAL SAVING KG OF CO_2
NUMBER OF CONVENTIONAL MAGNETIC LOCKS ELECTROMAGNETIC LOCKS		x 18.31 =		
NUMBER OF MEM DEVICES		x 6.73 =		

Analysis of Energy Consumption (Manufacture)

	NUMBER	kW-h	TOTAL kW-h	TOTAL SAVING kW-h
NUMBER OF CONVENTIONAL MAGNETIC LOCKS ELECTROMAGNETIC LOCKS		x 66.17 =		
NUMBER OF MEM DEVICES		x 21.02 =		

Annual Electricity Consumption (365 Days x 24 Hours)

	NUMBER	kW-h	TOTAL kW-h	TOTAL SAVING kW-h
NUMBER OF CONVENTIONAL MAGNETIC LOCKS ELECTROMAGNETIC LOCKS		x 51.52 kW-h		
NUMBER OF MEM DEVICES		x 29.43 kW-h		

Capacity for 24 Hours Standby Batteries

	NUMBER	A-h	TOTAL A-h	TOTAL SAVING A-h
NUMBER OF CONVENTIONAL MAGNETIC LOCKS ELECTROMAGNETIC LOCKS		x 5.88 A-h		
NUMBER OF MEM DEVICES		x 3.35 A-h		

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WALKING GENTLY ON OUR PLANET

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