

# RegenMaster

By D S W Solutions

Simple , Enhanced & Reliable Energy  
Recovery System

# Powerful Energy Recovery

**THE REGENMASTER** recovers and stores the energy generated by the elevator which is then automatically returned during the next consumption trip or used to support the VF drive's standby.

## **SUITABLE FOR NEW OR EXISTING ELEVATORS:**

Simple installation, just a two-wire connection to any VF drive. Completely independent from manufacturer, no interference with existing electronics.

## **SAVE ENERGY : SAVING UP TO 70%**

Every elevator requires electricity, however significant savings can be made via energy recovery. Consumption and costs will both decrease.

## **REDUCE CO2 EMISSIONS:**

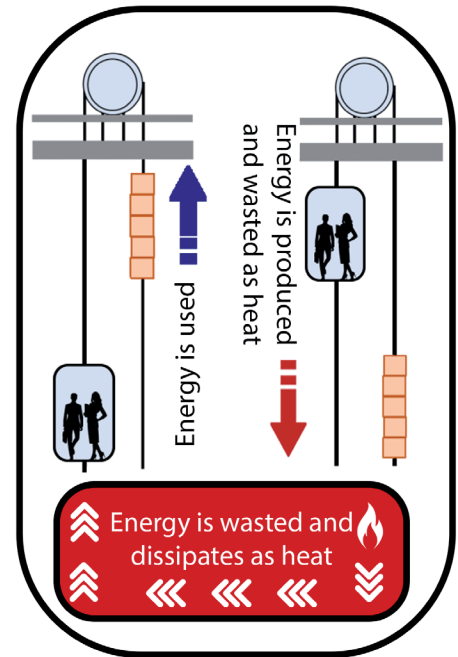
Boost your Net Zero initiative.



# Its All About Storage

## SYSTEM WITHOUT REGENMASTER

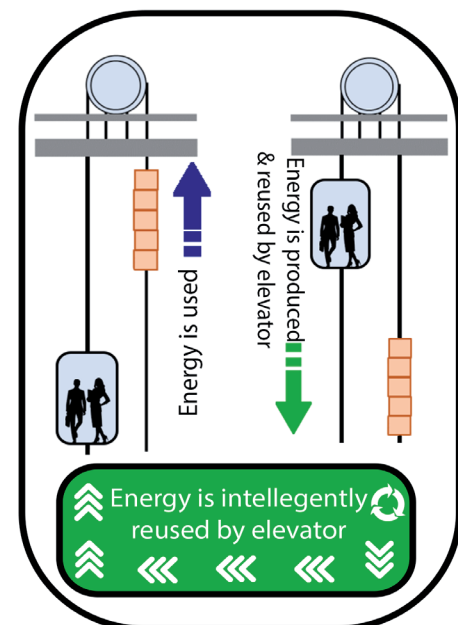
When the elevator car goes down loaded, it weighs more than the counterweight so the car goes down by the effect of gravity and the elevator motor acts as a brake, generating energy. This energy dissipates in the form of waste heat via the brake resistors.



## SYSTEM WITH REGENMASTER

With RegenMaster, the energy generated by lowering the loaded elevator car is captured, stored and reused automatically by the elevator to reduce overall consumption and electric bills.

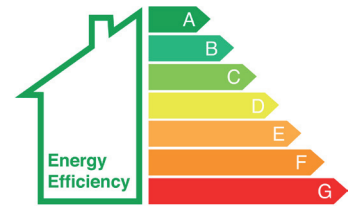
RegenMaster is capable of storing this energy to return it to the same elevator thus reducing the consumption in the next trip or, if there is no immediate trip, supplying the standby energy of the VF drive until the energy stored is depleted.



# Achieve Your Net Zero Initiatives

## Are you looking to protect the environment?

- We all know that elevator usage can be a huge energy drain. RegenMaster is a great way to improve energy efficiency, save money whilst also protecting the environment.
- Simply connects to the VF drive without any further impact on the existing lift system.
- Your elevator will be more efficient.
- Improve your elevator energy classification.
- Reduced size dimensions, it can fit in almost any machine room or existing MRL headroom space.



## Are you fed up with increasing energy costs?

- Reports suggest that elevators and escalators account for about 2-5% of the total power consumption in most buildings. It is estimated that during peak operational times, this figure can go up to as high as 40%.



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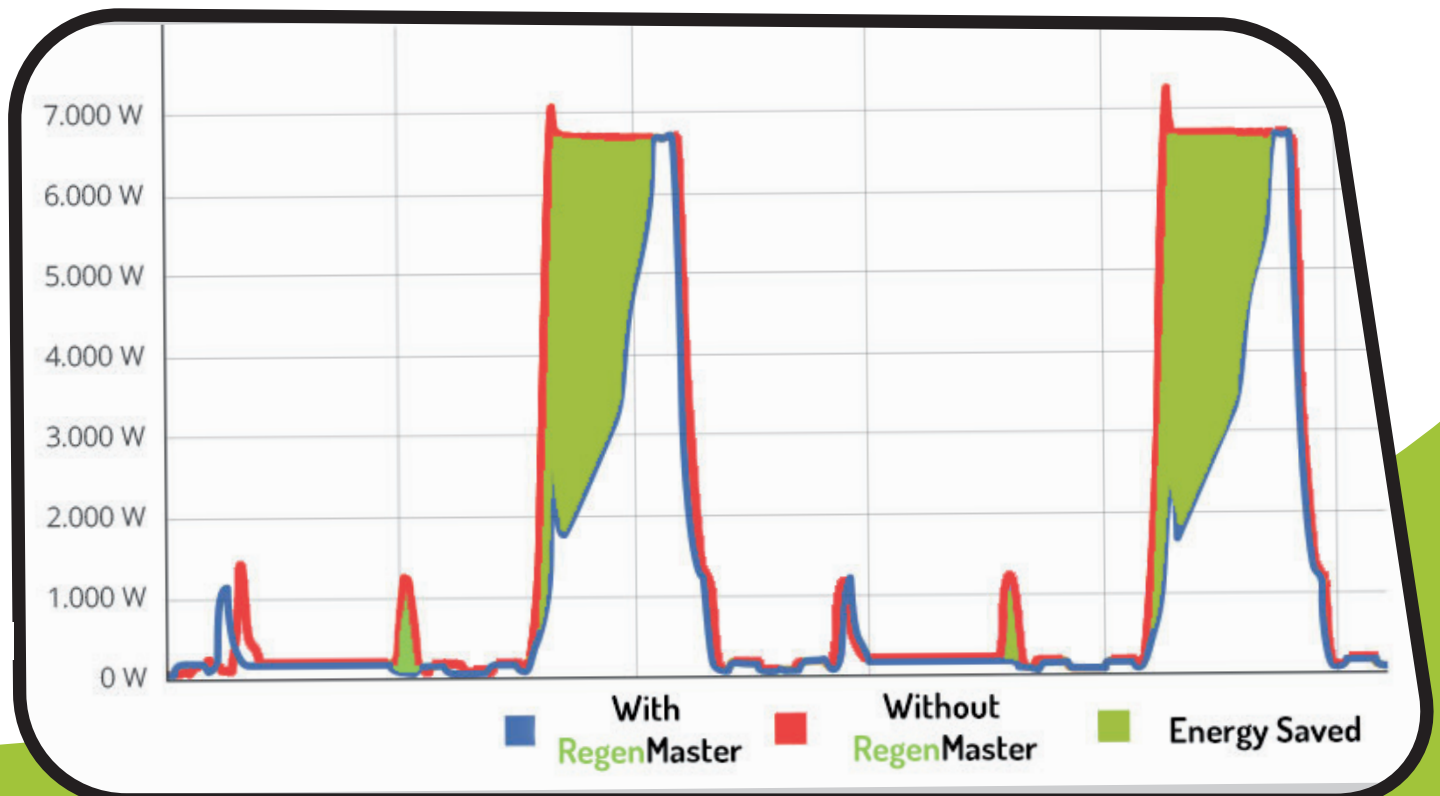
# Proven Storage Results

Do you want to save up to 70% of your elevator energy?

- We store the braking energy generated by the motor and then return it to the elevator for future consumption.
- Energy savings of up to 70% can be achieved whilst having no harmonic distortion and no added stand-by consumption.

Incredible 98% Efficiency

- If the lift generates 10Wh in one trip, we manage to store 98%, i.e., 9.8Wh in the supercapacitors and when we return it, 98% of those 9.8Wh, i.e., 9.6Wh, would reach the lift.



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# RegenMaster vs. Traditional Regenerative Drives

The energy generated by an elevator with a traditional regenerative drive is returned to the grid however the RegenMaster system actually stores that energy and returns it to the elevator itself.

A traditional regenerative solution in an elevator with little traffic can even make the elevator consume more energy being regenerative than not being regenerative, this does not happen with RegenMaster.

## CASE STUDY:

- Elevator: MRL Gearless
- Duty load: 1000kg
- Stops: 9
- Travel: 29,77m
- Speed: 1m/s
- Trip per day: 1600

**ANNUAL SAVINGS WITH  
REGENMASTER:**

**3201,46 KWH**

**TOTAL ELECTRIC BILL  
SAVING/ANNUM\*:**

**£1,088,50**

**CO2 EMISSIONS SAVED\*\***

**777.95 kg CO2 kg**



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\*at 34p/kWh, average in UK, as of January 2022 / \*\*243 kg CO2/kWh Source:  
<https://carbonintensity.org>

# Comparison

	RegenMaster	Traditional regen drive	Traditional regen drive	Notes
	Pros	Pros	Cons	
Retrofit	✓		✓	<p>RegenMaster is possible to install in any existing lift with a VF drive without any modification.</p> <p>Traditional regenerative solutions for existing elevators require the modification of key electronic components in the existing control panel whilst also including filters.</p>
Standby	✓		✓	<p>RegenMaster has less than 3W of standby consumption. A regenerative drive has a higher standby, typically between 20-40W.</p>
Simplicity	✓		✓	<p>RegenMaster is very straightforward and is just wired to the DC bus and earth. Traditional regenerative options require special filters.</p>
Real savings	✓		✓	<p>With RegenMaster the elevator actually consumes less energy. An elevator with a traditional regen drive consumes the same as with a standard drive or in-fact even more because of the high stand-by consumption.</p>
Electromagnetic compatibility (EMC)	✓		✓	<p>RegenMaster works in DC at the same time it reduces the consumption and the harmonics of the elevator installation.</p> <p>This is the opposite for a traditional regen solution which increase harmonics in consumptions and during travel.</p>

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# Comparison

	RegenMaster	Traditional regen drive	Traditional regen drive	Notes
	Pros	Pros	Cons	
Maintenance	✓	✓		Both are low maintenance devices (practically none).
Savings	✓✓	✓		<p>RegenMaster produces real savings due to the energy storage feature. When the elevator consumes, it takes energy from the grid and from the ERS which means the lift is taking less energy from the grid.</p> <p>The traditional regen option can only take the energy from the grid. The regen unit then gives back this energy to the grid. This does not equate to savings for everyone! (Due to net metering concept)</p>
Net metering	✓✓		✓	The RegenMaster is always going to mean real savings. Independent of the net metering policies of any country.
Installation	✓		✓	RegenMaster can be installed in 20 minutes with any VF drive. Completely simplified compared to a traditional regen solution.
Dimensioning	✓		✓	<p>RegenMaster must be dimensioned in accordance with the power generated, not the consumption. Whereas the traditional regen solution must be dimensioned according to the consumption.</p> <p>For example, an elevator of 1300kg at 1m/s would generate 5kW but it would consume about 8kW. So, it means that the ERS should be of 5kW but with the traditional regen solution it would be of 9kW. This initial financial outlay is minimal.</p>



Simple, Effective & Reliable Energy Recovery System



# Supercapacitors, A Force To Be Reckoned With

- Product lifespan  $\geq$  **59 years**.
- Bi-directional high-efficiency DC/DC converter which incorporated supercapacitor storage modules.
- Exclusively via a DC link connection to the VF drive, RegenMaster is capable of **automatically storing generated energy in the supercapacitors** to then return it when there is a consumption requirement.
- Supercapacitor modules offer better power density and cycling features than batteries. These are an ideal solution for fast charging and discharging applications such as elevators.
- **Supercapacitors require no maintenance.**

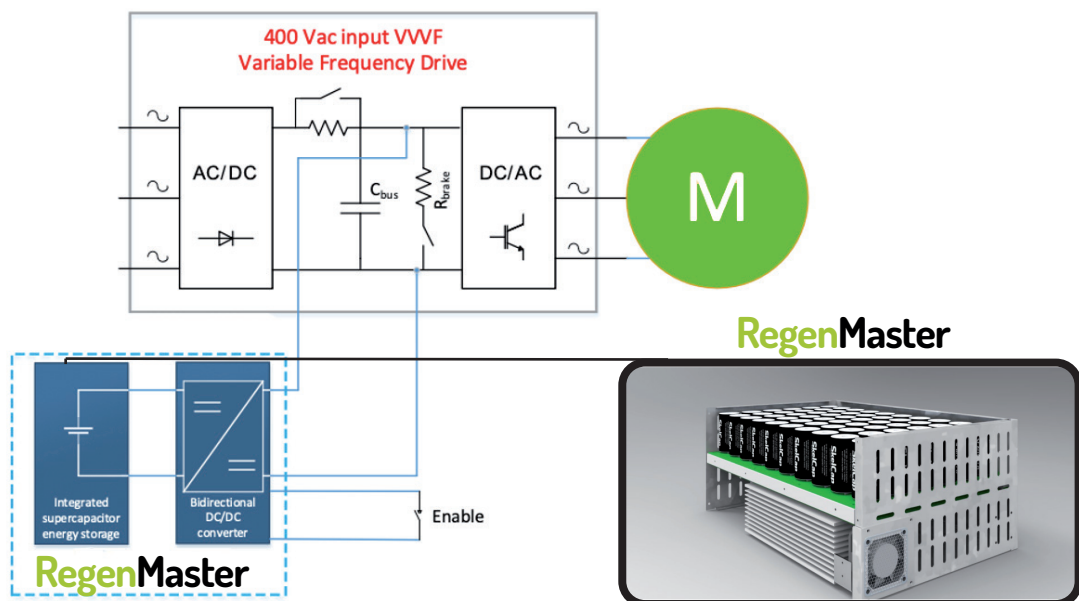
	RegenMaster x1	RegenMaster x2	RegenMaster x n (linkable)
For Power Up To...	Up To 15KW	Up To 30KW	Up To 15KW x n
Stored Energy	60000Ws	120000Ws	60000Ws x n
Nominal Power	6300W	12600W	6300W x n
Efficiency	Up To 98%	Up To 98%	Up To 98%
Standby	<2W	<2W	<2W

# RegenMaster

## Technical Specifications

- Height x Width x Depth (496.5 x 264.5 x 190mm).
- Weight: 13kg.
- IP Grade : IP2X CE Compliant.
- Supercapacitors are a type of accumulators that require no maintenance or replacement.
- CO2 during manufacturing: only 360kg.
- Calculations in accordance with ISO 25745-2: Energy performance of lifts, escalators and moving walks — Part 2: Energy calculation and classification for lifts (elevators).
- Units required: Please check our online calculator

### Wiring example:



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# Master of Many

## Additional RegenMaster Systems

### Single phase power supply system:

Transforms a three-phase lift into a 500W peak power single-phase lift as well as providing regenerative technology and making it possible to operate in case of power failure.

Suitable for new and existing elevators. The option of adding two solar panels guarantees that the elevator consumes ZERO energy during day time.



### Homelift – intelligent supply systems

Transform an electric Homelift into a 200W peak power unit.

Again, fully regenerative whilst being able to operate as a single-phase homelift allowing it to run in normal operation for hundreds of trips even during power failure. If connected to solar panels, Net ZERO energy consumption can be achieved during daylight.



# Master of Many

## Additional RegenMaster Systems

### Epic evacuation equipment.

High-performance backup power supply for mains failure which is ideal for Firefighting Lifts. Energises the elevator for a large number of trips during extended time enabling complete building evacuation.

This high-performance auxiliary supply system keeps the elevator running for hundreds of trips without mains. The system keeps the controller informed at every moment about the charge level of the batteries. The installation is very simple, even for existing elevators with no additional cabling to floors.



Calculate how much you can save online now at  
[www.dsw-solutions.com](http://www.dsw-solutions.com)



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## **Uplifting elevator businesses globally!**

DSW Solutions is proud to offer a growing range of product solutions for your project requirements. We cater for both new installations as well as modernisations.

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