

**VDC-XE**

For UPS Systems



## Mission-Critical Power Protection

**High  
Reliability**

**20-Year Life**

**Low Maintenance**

**Predictable  
Performance**

**Green**

**Small Footprint**



# Flywheel

Energy Storage

**VDC-XE**

# Never Maintain or Replace a UPS Battery Again!

## VYCON's Clean Energy Storage Delivers Where Batteries Fail

Clean Energy Storage

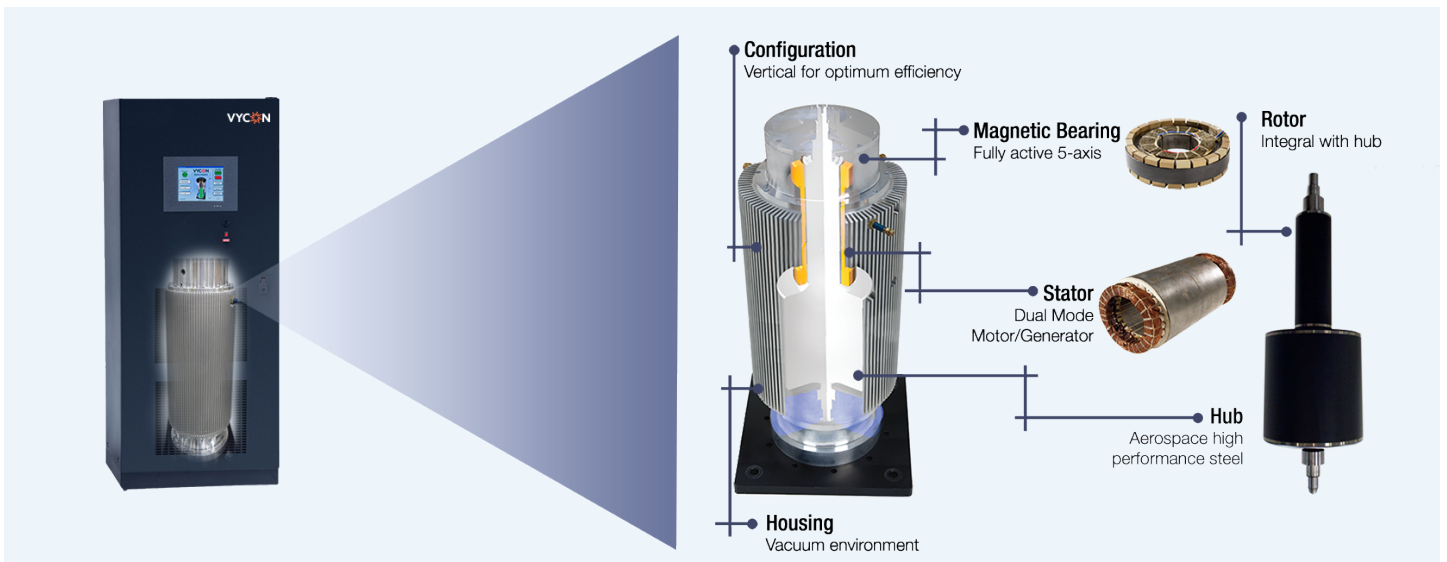
When it comes to power continuity, batteries are the weakest link in the power infrastructure chain. Relied upon to provide ride-through power for UPS systems, valve-regulated lead-acid (VRLA) batteries are unreliable, unpredictable, maintenance intensive, space intrusive, temperature sensitive and contain hazardous materials.

Using environmentally friendly energy storage from VYCON's patented flywheel technology, the VDC-XE and the higher-current model, VDC-XE HC, are the perfect solutions for users needing a more reliable, cost-effective and greener approach to backup power in place of hazardous, lead-acid based batteries used in mission-critical applications.

### Reduce Costs & Increase Backup Reliability

- ✱ 20x higher reliability
- ✱ Environmentally friendly/low carbon footprint
- ✱ 20-Year operational life
- ✱ Low maintenance
- ✱ High power density
- ✱ No bearings to replace
- ✱ 5-Year warranty

## Flywheel Components



## How it Works

Serving as a mechanical battery, the flywheel is a kinetic energy storage system that supports applications where batteries and other storage devices fall short.

The VYCON flywheel stores kinetic energy in the form of a rotating mass and is designed for high power, short discharge applications. VYCON's patented technology used within the flywheel includes the flywheel hub that is formed from aerospace-grade steel, a high-speed permanent magnet motor generator, contact-free magnetic bearings that levitate and sustain the rotor during operation, and a superior touch-screen control system that provides vital information on system performance. This innovative patented technology enables the VYCON flywheel to charge and discharge at high rates for countless cycles without degradation throughout its 20-year life.

## With Or Without Batteries, We've Got You Covered

When using the VDC-XE along with a battery-based UPS, the flywheel becomes the first line of defense against power anomalies – saving the batteries for prolonged power outages. The VDC-XE significantly increases battery life by absorbing over 98% of the discharges that would normally cause the batteries to be cycled.

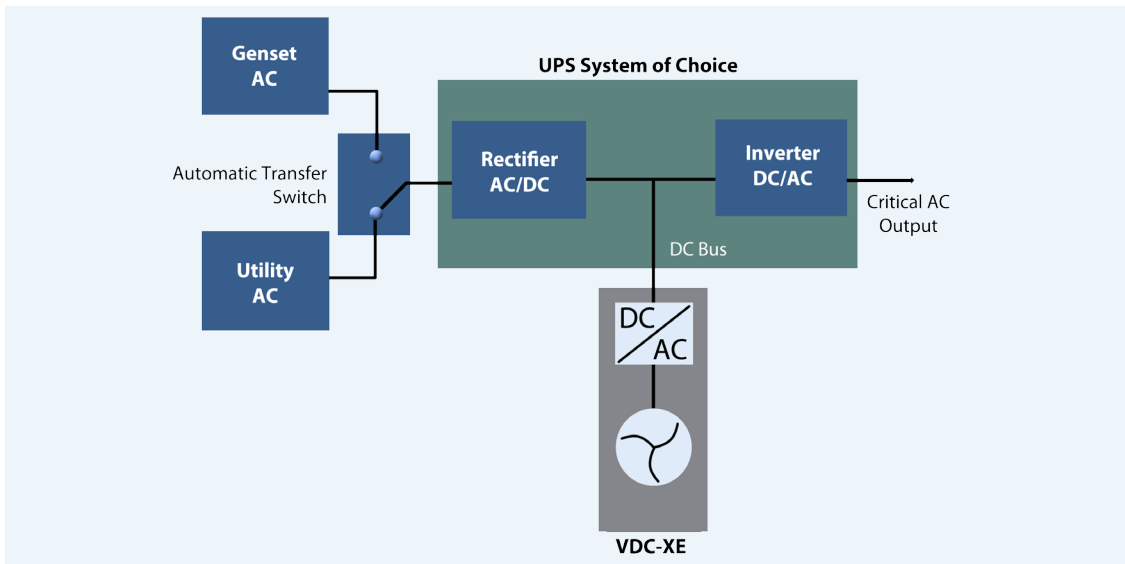
### Key User Benefits

- ✱ Predictability - Self-monitoring of energy storage system
- ✱ Availability - Reduced downtime - No bearings to replace
- ✱ Compatibility - Certified for use with all major brands of UPS
- ✱ Flexibility - Hybrid capability - Improved battery performance
- ✱ Scalability - Easily add flywheels for capacity or redundancy
- ✱ Sustainability - LEED points - Eliminate hazardous materials

## Power You Can Depend On

The VDC-XE systems interface with the DC bus of the UPS, just like a bank of batteries, receiving charging current from the UPS and providing DC current to the UPS inverter during discharge. Providing up to 300kW of instant ride-through power and voltage stabilization in one unit, the VDC-XE bridges the transfer from utility interruption to onsite engine gen-sets upon a prolonged power outage. Flywheels can be paralleled for longer runtimes or N+1 redundancy (see the runtime table on back cover).

### Continuous Power System



### Substantial Savings - Fast ROI

In just 3 to 4 years, you'll see a payback over using lead-acid batteries. Over a 15-year period, battery cooling requirements, high maintenance levels and frequent replacements can cost 3.5 times as much as the VYCON VDC-XE flywheel system. Let us customize an ROI calculation based on your specific applications.

In addition, VYCON offers attractive lease-to-own options that can allow you to have a lower capital cost upfront, make yearly "usage" payments (instead of paying for battery maintenance) and own the flywheel after 5 years.

## Highly Reliable Protection for Mission-Critical Applications



Data Centers



Medical Facilities



Broadcasting



Gaming



Transportation



Manufacturing



Mobile Power



# Specifications

## Runtimes\*

### VDC-XE

UPS Output Power Rating (kVA)

Number of Flywheels	40	60	80	100	120	160	225	250	275	300	400	500	550	600	750	800	825	1000	1100
1	105	71	53	42	34	24	13	11	8	7									
2			102	82	68	51	36	32	29	26	16	10	8	7					
3						77	55	49	45	41	30	22	19	16	10	9	8		
4								65	60	54	41	32	28	25	18	16	15	10	8
5											51	41	37	34	25	23	22	16	13
6													45	41	32	30	28	22	19

### VDC-XE HC

UPS Output Power Rating (kVA)

Number of Flywheels	40	60	80	100	120	160	225	250	275	300	400	500	550	600	750	800	825	1000	1100
1	105	71	53	42	34	24	16	14	12	10									
2			102	82	68	51	36	32	29	27	19	14	12	10					
3						77	55	49	45	41	30	24	22	19	14	13	12		
4								65	60	55	41	32	29	27	21	19	18	14	12
5											51	41	37	34	27	25	24	19	17
6													45	41	32	30	29	24	22

\*Backup times are typical using .9 Output Power Factor, 100% Full Load Rating, 96% UPS Inverter Efficiency

## Operating Parameters\*\*

### Power/Duration Ratings

Max Power	300kW
Max Energy Storage	4000kW-sec @130kW
Flywheel Rotational Speed	14,500 to 36,750 RPM

### Input

Input Voltage	400 – 600 VDC-XE / 495-567 for VDC-XE HC
Recharge Rate	15-50 Amps: Adjustable per application
Efficiency	99.4% at Max Power Rating

### Output

Voltage Discharge	400–520 VDC: Adjustable per application
Voltage Regulation	+/- 1%
DC Ripple	Less than 2%
Operating Temperature	-4°F to 104°F (-20°C to 40°C)
Humidity	95% non-condensing
Altitude	5,000 ft. (1524m) max without de-rating
Audible Noise	< 68dBA at 3.3 ft. (1M)

### Dimensions and Weight

Height	73.7 in. (1872mm)
Width	30.0 in. (762mm)
Depth	30.0 in. (762mm)
Weight	1537 lbs. (705kg)

\*\*Specifications subject to change



## About VYCON

VYCON is a leading manufacturer of flywheel-based energy storage systems. VYCON employs the latest technologies in power electronics, digital controls, magnetic bearings and high-speed motor generators to provide products that are reliable, long lasting and essentially maintenance free.



For more information on our award-winning Flywheel technology, please visit [www.VyconEnergy.com](http://www.VyconEnergy.com) or contact your local Authorized Reseller.

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