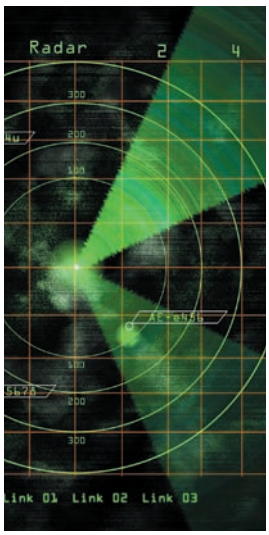
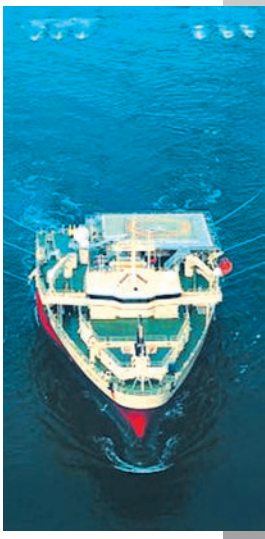
ELECTROCHEM™
COMMERCIAL POWER

THE WORLD'S MOST RELIABLE › MOST DURABLE › LONGEST-LASTING › CELLS AND BATTERY PACKS



+716.759.5800 + WWW.ELECTROCHEMPOWER.COM

HERE'S WHY THE WORLD'S LEADING COMPANIES CHOOSE ELECTROCHEM >

WHO USES ELECTROCHEM? >

We're the cell of choice for some of today's most successful companies – and for tomorrow's most promising industries – just as we have been for more than 25 years.

USED BY >

- GE ENERGY +
- HALLIBURTON +
- MCDONNELL DOUGLAS +
- NASA +
- SCRIPPS INSTITUTION OF OCEANOGRAPHY +
- SKYBITZ +
- U.S. MILITARY +
- WOODS HOLE OCEANOGRAPHIC INSTITUTE +

FOR >

- MEASUREMENT WHILE DRILLING (MWD) +
- LOGGING WHILE DRILLING (LWD) +
- PIPELINE INSPECTION GAUGES (PIG) +
- PRESSURE MEASUREMENT +
- MOBILE ASSET TRACKING +
- RFID +
- FLEET MANAGEMENT +
- MACHINE TO MACHINE (M2M) +
- OCEANOGRAPHIC BUOYS +
- SONAR DEVICES +
- EPIRBS +
- UNDERWATER VEHICLES +
- MILITARY COMMUNICATIONS +
- INTELLIGENCE AND SURVEILLANCE +
- GPS SYSTEMS +
- SEISMIC SURVEYING +
- MEMORY BACK-UP +
- AUTOMATED INSTRUMENTATION +
- SENSING DEVICES +

THE MOST RELIABLE >

+ Manufacturing traceability to track every component in each cell
+ 100% leak testing on request (sample testing is standard)
+ "Non-magnetic" cells will not interfere with sensitive data recording instruments
+ Regular long-term testing on all cells and packs
+ Six Sigma™ Quality Improvement Philosophy and ISO quality systems

THE MOST DURABLE >

+ Multiple electrode designs let you choose the one that best meets your specs
+ 100% weld inspection, 100% voltage inspection
+ Packs can be fully encapsulated in rubber, since cells don't off-gas
+ Stainless steel cases

THE LONGEST-LASTING >

+ Reduced passivation due to refined and enhanced electrolytes, as well as optimized manufacturing controls
+ Low self-discharge (1%–3% per year)
+ Higher quality electrolytes, with more than a dozen formulations to choose from based on your specs

THE HIGHEST ENERGY DENSITY >

+ Up to .9 Whr/cc – nearly three times higher than alkaline
+ 3.93 volt sulfuryl chloride and bromine chloride technologies are the first in the industry
+ Optimized cell balances of core elements for more power, more consistently
+ Capacity of more than 40 Ahr with tall super D cells

THE SAFEST >

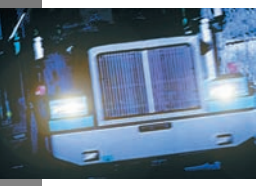
+ Cells and packs undergo extensive safety and abuse testing
+ Products meet the requirements of "UN Recommendations on the Transport of Dangerous Goods"
+ Protective circuitry prevents short circuit hazards, overdischarge and charging risks
+ Reinforced glass-to-metal seals maintain hermeticity even under extreme temperatures, preventing leakage by allowing internal pressure to be restrained
+ Thermal fuses provide "over current" protection
+ Blocking diodes prevent dangerous reverse current flow
+ Shunt diodes maintain continuity of circuit

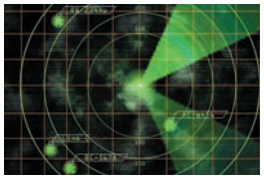
FOR THE MOST EXTREME CONDITIONS >

+ Designed for temperatures from -55°C to +200°C
+ Shock up to 3,000 g
+ Vibration up to 40 grms

HIGH RATE›

WHEN FAILURE IS NOT AN OPTION





Developed for the most demanding applications, where a failed battery can cost you a lost day of production, half a million dollars in lost revenue or even a human life.

+ Advanced spiral-wound technology
+ All High Rate Cells have internal fuses
+ Used for high temperature downhole and pressure gauge applications, pipeline inspection gauges (PIG), military communications, surveillance, telematics, asset tracking, long-term oceanographic deployment and more
+ DD cells deliver continuous current up to 4 A per cell and total capacity up to 30 Ahr

BCX85 SERIES

°C -55 ◄► 85

OPEN CIRCUIT VOLTAGE: **3.93V**

High rate, spiral-wound technology uses proprietary enhanced bromine chloride technology. Delivers superior restart, pulse capability and dependable performance over wide temperature ranges and discharge rates.

Used in fleet management, telematics, seismic surveying, oceanography, animal telemetry and GPS tracking for security and law enforcement surveillance.

CSC93 SERIES

°C -20 ◄► 93

OPEN CIRCUIT VOLTAGE: **3.93V**

Powerful, spiral-wound enhanced sulfuryl chloride technology. Delivers superior restart, high pulse capability and dependable performance over wide temperature ranges and discharge rates. Suited for high rate applications. Used in pipeline inspection, oceanography, telemetry and GPS surveillance.

PMX150 SERIES

°C -20 ◄► 150

OPEN CIRCUIT VOLTAGE: **3.93V**

Extended temperature sulfuryl chloride technology. Suitable for temperatures to 150°C. Used in high rate, high temperature downhole oil and gas pressure measurement and industrial telemetry.

PMX165 SERIES[c]

°C -20 ◄► 165

OPEN CIRCUIT VOLTAGE: **3.93V**

Upper temperature range extended to 165°C.

MWD150 SERIES

°C 0 ◄► 150

OPEN CIRCUIT VOLTAGE: **3.67V**

DD size spiral-wound, advanced thionyl chloride technology suitable for dynamic, mechanically demanding applications. High temperature applications in downhole oil and gas measurement while drilling and industrial telemetry.

QTCDD SERIES

°C -40 ◄► 85

OPEN CIRCUIT VOLTAGE: **3.67V**

Spiral-wound proprietary thionyl chloride technology suitable for high current, high capacity military applications and industrial telemetry.

VHT200 SERIES[d]

°C 70 ◄► 200

OPEN CIRCUIT VOLTAGE: **3.67V**

Spiral-wound advanced thionyl chloride technology using specialized alloyed anode for demanding, high temperature applications to 200°C.

CELL SIZE	PART NUMBER	DIAMETER (mm)	LENGTH (mm)	LITHIUM WEIGHT(g)	RATED CURRENT(mA)	MAX. CONT. CURRENT(mA)[a]	INTERNAL FUSE(A)	RATED CAPACITY(Ahr)
0.5g AA	3B0027	13.70	49.20	0.5	10	50	4 (link)	1.6
AA	3B0064	13.70	49.20	0.6	20	100	4 (link)	2
C	3B0070	25.60	48.40	2.2	50	500	4	7
C-LMS	3B3800	25.60	48.40	2.2	175	750	4	7
Sub CC	3B6600	21.00	127.00	3.65	100	1000	2	10
D	3B0075	33.50	59.30	4.6	175	1000	4	15
D-LMS	3B4000	33.50	59.30	4.6	175	1000	4	15
DD	3B0076	33.50	111.50	10.3	350	3000	4	30
TSD	3B6100	44.50	95.00	14.7	500	2000	3	40
SD-LMS[b]	3B4700[b]	44.50	67.80	10.2	85	1000	3	32
AA	3B0024	13.70	49.20	0.6	50	150	4 (link)	2
1/2 C	3B0029	25.60	28.70	1.2	75	350	1	3.4
2/5 C	3B0665	25.60	23.30	0.9	50	250	1	2.5
C	3B0030	25.60	48.40	2.2	175	1000	4	7
D	3B0035	33.50	59.30	4.6	500	2000	4	15
DD	3B0036	33.50	111.40	10.3	1000	4000	7	30
TSD	3B6200	44.50	95.00	14.7	500	2000	5	40
1/2 AA	3B5700	13.70	29.90	0.27	20	150	4 (link)	0.8
AA	3B1065	13.70	53.16	0.5	20	150	4 (link)	1.6
C	3B3700	24.76	51.87	1.9	50	500	2.5	6.2
CC	3B3000	24.76	102.62	4.2	50	500	3	13
DD	3B2800	32.90	127.50	8.3	350	2000	5	25
C	3B5100	24.76	51.87	1.9	50	500	2	6.2
CC	3B5200	24.76	102.62	4.2	50	500	2	13
DD	3B3900	32.64	127.51	8.0	500	2000	3	24
DD	3B2600	33.50	112.00	10.3	500	2000	poly	27
AA	3B5400	13.70	53.16	0.45	20	150	4 (link)	1.1
C	3B4800	24.76	51.87	2.2	50	250	1.6	4.5

Self-discharge for all High Rate Cells is <3% per year at 25°C.

[a] Higher pulse currents are possible (limited by the internal fuse).
[b] Upper temperature limit on model 3B4700 BCX65 SD-LMS cell is 65°C.
[c] Rated Capacity measured at 140°C.
[d] Rated Capacity measured at 200°C.

Contact Electrochem Commercial Power for our complete range of cell types, capacities, temperature ranges and cell sizes.

MODERATE RATE›

PROVEN RELIABILITY AND SAFETY

For reliable rate capabilities, even under extreme conditions, Electrochem cells deliver - day after day, year after year.

+ High internal surface areas for higher power output
+ Continuous and pulsed current
+ Designed for a wide variety of uses, including Measurement While Drilling (MWD)
+ Sized from sub CC cells, to the industry standard DD and even the new 47mm diameter super D cell

150MR SERIES

°C -40 ◄——► 150

OPEN CIRCUIT VOLTAGE: **3.67V**

Ideally suited for high temperature, high shock and vibration applications such as downhole oil and gas and industrial production environments. The 150MR Series Moderate Rate Cells are designed to deliver reliable performance under harsh environmental and application conditions.

CELL SIZE	PART NUMBER	SERIES	DIAMETER (mm)	LENGTH (mm)	LITHIUM WEIGHT(g)	RATED CURRENT(mA)	MAX. CURRENT(mA)[a]	RATED CAPACITY(Ahr)
Sub CC	4248	21-100	20.70	101.60	3.3	125	200	10
C	4264	25-48	24.60	48.50	2	100	100	6
C	4302	26-48	25.40	48.51	2.1	100	100	6
3/2 C	4322	26-76	25.40	76.20	3	100	150	11
CC	4287	25-102	24.60	101.60	4.7	100	190	13
CC	4339	26-99	26.00	99.00	5.75	100	200	15
CC	4342	26-102	25.40	101.60	4.8	100	200	15
D	4362	33-60	31.75	57.94	3.7	100	170	12
DD	4422	33-127	31.75	125.10	8.4	200	550	29
TSD	4435	47-80	48.60	80.00	11.3	200	500	40

165MR SERIES

°C -40 ◄——► 165

OPEN CIRCUIT VOLTAGE: **3.67V**

Extends the upper temperature limit to +165°C as required in advanced deep oil well exploration.

CELL SIZE	PART NUMBER	SERIES	DIAMETER (mm)	LENGTH (mm)	LITHIUM WEIGHT(g)	RATED CURRENT(mA)	MAX. CURRENT(mA)[a]	RATED CAPACITY(Ahr)
Sub CC	4249	21-100	20.70	101.60	3.3	125	200	9
CC	4285	25-102	24.60	101.60	4.7	100	225	14
CC	4330	26-97[b]	25.40	101.60	4.5	100	200	14
D	4363	33-60	31.75	57.94	3.5	100	200	11
DD	4408	33-120[b]	31.75	125.10	7.5	200	500	27

180MR SERIES[c]

°C 50 ◄——► 180

OPEN CIRCUIT VOLTAGE: **3.67V**

High temperature operation to +180°C for extremely harsh environments where high shock and vibration performance is required.

CELL SIZE	PART NUMBER	SERIES	DIAMETER (mm)	LENGTH (mm)	LITHIUM WEIGHT(g)	RATED CURRENT(mA)	MAX. CURRENT(mA)[a]	RATED CAPACITY(Ahr)
C	4266	25-48	24.60	48.50	2	100	100	5
3/2 C	4323	26-71[b]	25.40	76.20	3.25	100	200	9
CC	4286	25-97[b]	24.60	101.60	4.8	100	200	10
CC	4288	25-102	24.60	101.60	4.7	100	170	11
CC	4343	26-97[b]	25.40	101.60	5	100	200	11
DD	4409	33-120[b]	31.75	125.10	7.7	225	320	24

200MR SERIES[d]

°C 70 ◄——► 200

OPEN CIRCUIT VOLTAGE: **3.67V**

Utilizes proprietary anode alloy technology to extend the upper temperature limit to +200°C.

CELL SIZE	PART NUMBER	SERIES	DIAMETER (mm)	LENGTH (mm)	LITHIUM WEIGHT(g)	RATED CURRENT(mA)	MAX. CURRENT(mA)[a]	RATED CAPACITY(Ahr)
Sub C	4245	21-97	20.10	101.60	4.2	68	100	6.2
CC	4283	25-97[b]	20.60	101.60	4.2	68	100	6.2
CC	4346	26-97[b]	25.40	101.60	5.6	68	100	10
CC	4289	25-102	24.60	101.60	4.7	68	100	9

Self-discharge for all Moderate Rate Cells is <2% per year at 25°C.

[a] Higher pulse currents are possible. Refer to data sheet for complete product details.
[b] Reinforced "non-bulge" cell-spacer may be added to equal next standard length.
[c] Rated Capacity measured at 100°C.
[d] Rated Capacity measured at 120°C.

Contact Electrochem Commercial Power for our complete range of cell types, capacities, temperature ranges and cell sizes.

+ 716.759.5800
+ WWW.ELECTROCHEMPOWER.COM

LOW RATE›

OUTPERFORMS ALKALINE IN EVERY WAY



Still using old technology or another brand's inferior lithium cell? Our high standards mean your Low Rate Cells work better.

+ Proven bobbin and PC-style construction techniques
+ Good capacities and high energy density
+ Continuous and pulsed currents
+ Ideal for biological studies (including animal telemetry), fisheries, environmental studies and low current downhole petroleum uses
+ Wide range of cell sizes, from 7-10 ultra-miniature to DD high temperature cell

PC SERIES

High capacity with excellent performance across wide temperature range.

BCX85

°C -55 ↔ 85

OPEN CIRCUIT VOLTAGE: **3.93V**

CSC93

°C -20 ↔ 93

OPEN CIRCUIT VOLTAGE: **3.93V**

QTC85

-40 ↔ 85

OPEN CIRCUIT VOLTAGE: **3.67V**

CELL SIZE	PART NUMBER	SERIES	DIAMETER (mm)	LENGTH (mm)	LITHIUM WEIGHT (g)	RATED CURRENT (mA)	MAX. CURRENT (mA)[a]	RATED CAPACITY (Ahr)
PC	3B0050	BCX85	25.40	7.60	0.4	1	10	1.0
PC	3B0045	CSC93	25.40	7.60	0.4	1	10	1.0
PC	3B0880	QTC85	25.40	7.60	0.4	0.1	1	1.0

QTC85 SERIES

°C -40 ↔ 85

OPEN CIRCUIT VOLTAGE: **3.67V**

Low cost, reliable thionyl chloride – for low rate applications.

1/2 AA	3B0960	QTC85	14.50	24.60	0.2	0.04	4	0.75
2/3 A	3B0950	QTC85	17.00	36.10	0.4	0.8	8	1.5
AA	3B0940	QTC85	14.50	50.54	0.5	0.1	10	1.9

100LR SERIES

°C -40 ↔ 100

OPEN CIRCUIT VOLTAGE: **3.67V**

Low rate, bobbin style design uses proprietary thionyl chloride technology. Used in animal telemetry, GPS tracking for security and law enforcement surveillance, and non-implantable medical applications. Ultra miniature cell sizes feature high energy densities. Cell range Sub-AAA to DD size. Used in low rate applications.

7-10	4006	Sub AAA	7.00	8.40	0.02	0.5	0.5	0.06
10-12	4019	Sub AAA	9.50	12.00	0.1	0.5	5	0.14
10-18	4021	Sub AAA	9.50	18.01	0.1	1	8	0.35
10-25	4030	Sub AAA	9.50	25.40	0.2	1	10	0.5
10-35	4040	Sub AAA	9.50	34.81	0.3	1.5	14	0.7
DD	4420	33-127	31.75	125.10	7.6	100	220	24

150LR SERIES

°C -40 ↔ 150

OPEN CIRCUIT VOLTAGE: **3.67V**

Low rate, bobbin style design for high temperature applications. Used in oil and gas exploration, industrial telemetry and OEM applications.

Offering high energy densities, cells range from Sub-AAA, ½ AA to uniquely sized ⅔ C and CC sizes. Used in low rate applications requiring reliable performance at elevated temperatures.

10-25	4037	Sub AAA	9.50	25.40	0.14	2	10	0.5
1/2 AA	4161	14-24	13.46	24.00	0.3	4	10	0.8
AA	4190	14-50	13.46	48.30	0.6	10	20	1.9
AA	4204	14-50R	13.46	48.30	0.5	10	20	1.6
C	4301	26-48	25.40	48.50	1.8	39	60	5.2
3/2 C	4321	26-76	25.40	76.20	2.7	68	90	9.0
CC	4282	25-102	24.60	101.60	3.7	68	125	12.0
CC	4341	26-102	25.40	101.60	2.7	68	90	15.0

180LR SERIES[b]

°C 50 ↔ 180

OPEN CIRCUIT VOLTAGE: **3.67V**

Low rate, bobbin style design for extreme high temperature applications. Used in oil and gas exploration, industrial telemetry and OEM applications.

AA	4225	14-50R	13.46	48.30	0.5	10	15	1.4
CC	4284	25-102	24.60	101.60	4	68	100	10.0

200LR SERIES[c]

°C 70 ↔ 200

OPEN CIRCUIT VOLTAGE: **3.67V**

Low rate, bobbin style design for extreme high temperature applications. Used in oil and gas exploration, industrial telemetry and OEM applications.

AA	4230	14-50	13.46	48.30	0.6	10	20	1.4

Self-discharge for all Low Rate Cells is <2%-3% per year at 25°C.

[a] Higher pulse currents are possible. Refer to data sheet for complete product details.
[b] Rated Capacity measured at 120°C.
[c] Rated Capacity measured at 200°C.

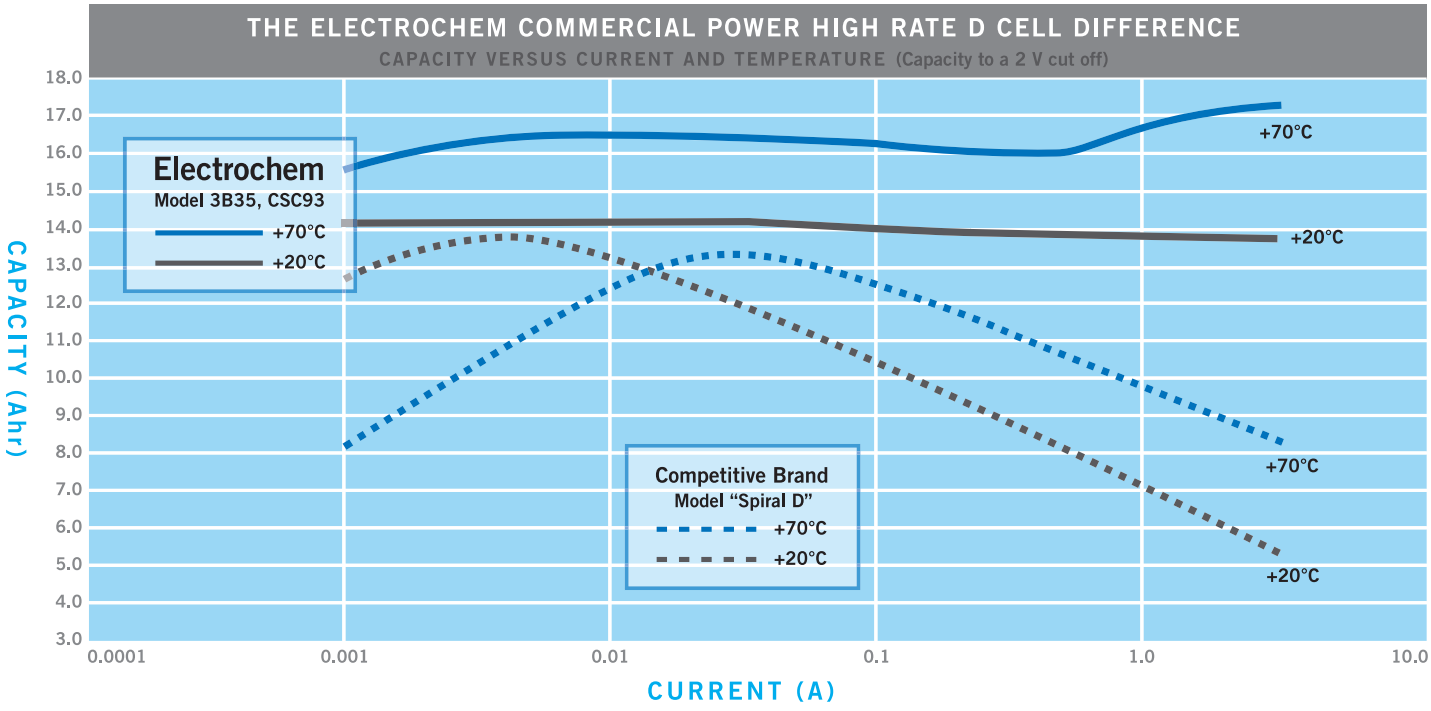
Contact Electrochem Commercial Power for our complete range of cell types, capacities, temperature ranges and cell sizes.

A HISTORY OF INNOVATION > Since 1979, we've specialized in providing power for highly critical commercial applications, where the cost of failure far outweighs the cost of a cell. We invest a considerable amount of money on research and development, offering new and improved designs each year for our cells and packs. Today, Electrochem is a division of Greatbatch Ltd. (NYSE: GB), the world's leading manufacturer of medical batteries for implantable applications.

AVAILABLE AROUND THE GLOBE > Sometimes, you need it yesterday. Our Value-Added Reseller (VAR) program includes dozens of resellers around the world, selected and trained by Electrochem to help you solve your power needs ASAP. For a complete list of Electrochem authorized VARs, go to *www.electrochempower.com/HowToBuy.*

COMPREHENSIVE PRODUCT SELECTION > Just give us your specs and we'll help you select the cell or pack that works best for you – and show you the test results to prove it. With nearly 20 sizes, multiple electrode designs and more than a dozen electrolyte formulations, we can design a semi-custom cell for your specific application.

+ DIFFERENT ELECTRODES SPECIFICALLY DESIGNED FOR DIFFERENT APPLICATIONS
+ MORE THAN A DOZEN ELECTROLYTE FORMULATIONS, DEPENDING ON INTENDED USAGE
+ WE TEST OUR CELLS BASED ON YOUR SPECS AND SHOW YOU THE RESULTS TO LET YOU DECIDE



ELECTROCHEM PACKS > We can provide the safest, most efficient packs to meet your specs at an affordable price. And if you need a battery pack we don't have, we'll custom build a prototype for you to meet your requirements.

+ CUSTOM DESIGN AND ENGINEERING IS STANDARD AT ELECTROCHEM
+ NO OFF-GASSING MEANS YOU CAN GET A FULLY ENCAPSULATED PACK BUILT WITH DURABILITY IN MIND
+ QUICK TURNAROUND ON CUSTOM PROTOTYPES

ELECTROCHEM™
COMMERCIAL POWER

+ 9645 WEHRLE DRIVE, CLARENCE, NEW YORK 14031
+ 716.759.5800 TEL + 716.759.2562 FAX
+ WWW.ELECTROCHEMPOWER.COM

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