PILAS Y BATERÍAS INDUSTRIALES

7ª edición

INDUSTRIAL BATTERIES

7ª edition

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BATERÍAS DE LITIO RECARGABLES

RECHARGEABLE LITHIUM BATTERIES

Moto eléctrica
Electric motorbike

Luz de emergencia
Emergency light

Linterna
Flashlight

Helicóptero de radiocontrol
Radio Controlled Helicopter

1.- Descripción

La evolución y proliferación de dispositivos electrónicos alimentados por baterías ha impulsado en los últimos años el desarrollo de nuevas tecnologías que han permitido mejorar las prestaciones de los aparatos electrónicos. Las baterías con base de litio son la última generación de baterías de uso popular. Forman parte de nuestra vida al estar presentes en los smartphone, tablet, ordenador portátil, etc. La tecnología de baterías basadas en Litio es ya una tecnología madura después de varias décadas de desarrollo. Sigue siendo una tecnología que se diferencia de las demás por las múltiples ventajas sin apenas factores negativos.

Las principales ventajas son su alta densidad de energía, su rápida carga y su ligereza a la vez que el inconveniente principal es su inestabilidad química frente a sobre-cargas o sobre-descargas que obligan a utilizar sistemas electrónicos que protejan a la batería.

Hay varias familias de baterías de litio en función de los materiales utilizados en su construcción, principalmente en el cátodo: Cobalto, Manganeso, Ferrofosfato, Titanato, etc.

2.- Carga

Las baterías de Litio requieren una técnica de carga muy específica debido a sus características químicas y eléctricas. En otras tecnologías, como las basadas en Níquel o Plomo, la batería alcanza la carga plena antes de que la sobre-carga pueda producir daños, normalmente debidos al calor liberado por la energía no almacenada. Sin embargo, las baterías de Litio se deterioran químicamente cuando sobrepasan un determinado voltaje, apesar de no estar totalmente cargadas.

Por este motivo, se debe utilizar una carga combinada de corriente constante/voltaje constante (CC/CV) de forma que la batería se carga a intensidad constante hasta que alcanza el voltaje máximo. En ese punto, el voltaje debe mantenerse constante mientras la intensidad va disminuyendo hasta un nivel señalado en el que se considera cargada la batería.

Las baterías de Litio admiten una intensidad de carga de relación elevada con respecto a la Capacidad en comparación a otras tecnologías y tienen un rendimiento muy alto en la carga.

1.- Description

The development and proliferation of battery-powered electronic devices has promoted in recent years the development of new technologies that have improved the performance of electronic devices. The lithium-based batteries are the latest generation of batteries in popular use. They are part of our life as they are present in the smartphones, tablets, laptops, etc. Technology based on lithium batteries is already a mature technology after decades of development. It remains as a technology that differs from the others by its multiple advantages with few negative factors.

The main advantages are its high energy density, rapid charging and light weight while the main disadvantage is its chemical instability against overloads or overdischarges that require the use of electronic systems to protect the battery.

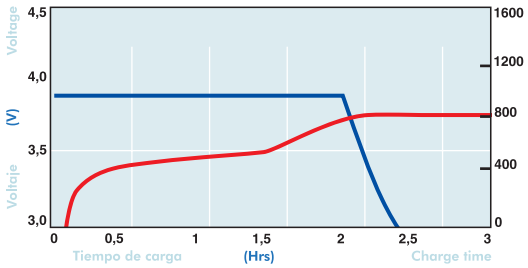
There are several families of lithium batteries depending on the materials used in its construction, mainly in the cathode: Cobalt, Manganese, Iron-Phosphate, Titanite, etc.

2.- Charge

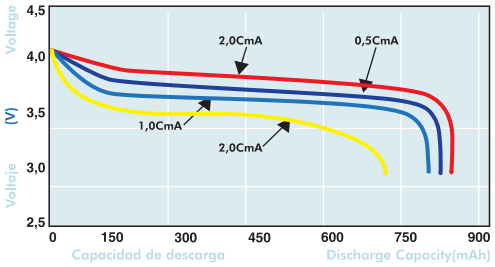
Lithium batteries require a very specific charging technique due to its chemical and electrical properties. In other technologies, like the ones based on Nickel or Lead Acid, the battery reaches its maximum charge before the over-charge can produce any damage, normally caused by the heat liberated by the energy that is not stored. However, Lithium batteries deteriorate chemically when they exceed their maximum voltage, even though they are not fully charged.

For this reason, it should be used a combined charging method constant current / constant voltage (CC / CV) so the battery is charged at constant current until it reaches the maximum voltage. At that point, the voltage must be kept constant while the current decreases until a specific level at which the battery is considered charged.

Lithium batteries support a high charging current with respect to the capacity compared to other technologies and have a very high charging efficiency.



Carga de batería Li-Po
Li-Po battery charge



Descarga de batería LI-Ion
Li-Ion battery discharge

3.- Descarga

Las baterías de Litio no deben descargarse por debajo de un determinado voltaje. Si esto sucede, la batería se deteriora disminuyendo la capacidad, el número de ciclos o desgastándose el electrolito. La auto-descarga de las baterías de Litio es muy inferior a la de otras tecnologías.

4.- Circuitos de protección

La vulnerabilidad de las baterías de Litio frente a sobre-voltaje, sobre-descarga y sobre-intensidad entre otros, hace muy recomendable (casi imprescindible) el uso de circuitos electrónicos que controlen los valores de voltaje e intensidad en carga y descarga para evitar daños en la batería. El término PCM (Protection Circuit Monitor) sirve para designar un pequeño circuito electrónico que controla los parámetros peligosos para la batería. El PCM tiene el control y capacidad de desconectar la batería para protegerla tanto en la carga como en la descarga. Son circuitos muy simples y muy eficaces que conviven con las baterías de Litio en casi todas las situaciones.

5.- Asociación en baterías

La asociación de baterías en “packs” es frecuente ante la necesidad de conseguir una batería con el voltaje y la capacidad necesarios para cubrir las necesidades de los dispositivos electrónicos. En todas las tecnologías, si bien la asociación en serie es relativamente sencilla y segura, la unión en paralelo es fuente de problemas de funcionamiento del pack. Las baterías de Litio, sin embargo, pueden ser conectadas en paralelo en aplicaciones en las que se necesita gran capacidad.

Es fundamental usar PCMs adecuados para asociaciones en serie que monitoricen los niveles de cada batería de forma que si una de las baterías en serie alcanza el nivel máximo o mínimo el PCM debe aislar la batería.

La asociación de baterías de Litio en packs en serie, provoca la descompensación de las baterías individuales. Este efecto se debe a que las baterías no son exactamente iguales a pesar de que deben asociarse baterías los más parecidas posible. Al no ser iguales, no se cargan y descargan a la vez y siempre habrá una batería del pack que alcance el nivel máximo de carga o de descarga antes que las demás y que provocará la desconexión del pack por el PCM.

El desequilibrio de las baterías es un problema gave. El pack de baterías simulará tener la capacidad de la batería más descargada del conjunto, dando la sensación de que el pack tiene menos capacidad de la que realmente tiene.

6.- Balanceo de las células de una asociación de baterías

El balanceo es una técnica que se aplica a packs de baterías para corregir los desequilibrios que aparecen entre las diferentes células de un pack. Esta función se puede realizar de muchas maneras. Los PCMs FULLWAT de 2 o más baterías en serie incorporan un balanceador por batería que descarga una parte de la intensidad de carga cuando la batería está a punto de alcanzar el voltaje máximo. De esta manera se ralentiza la última parte de la carga para la batería que más cargada está, mientras que las demás baterías del pack se siguen cargando más rápido. De esta manera, en cada carga, se minimiza el desequilibrio entre las baterías.las baterías.

3.- Discharge

Lithium batteries should not be discharged below a certain voltage. If this happens, the battery deteriorates lowering the capacity, the number of cycles or deteriorating the electrolyte. The self-discharge of lithium batteries is much lower than other technologies.

4.- Protection circuits

The vulnerability of lithium batteries against overvoltage, overdischarge and overintensity among others, makes highly recommended (almost essential) use electronic circuitry to control the voltage and current values while charging and discharging to avoid damage on battery. The term PCM (Protection Circuit Monitor) is used to describe a small electronic circuit that controls hazardous parameters of the battery. The PCM has the control and ability to disconnect the battery to protect both charge and discharge. They are very simple and very effective circuits that coexist with lithium batteries in almost all situations.

5.- Batteries assembly

The association of batteries in packs is often necessary to obtain a battery with enough voltage and capacity to reach the needs of the electronic devices. In all technologies, although the association in series is relatively simple and safe, the association in parallel is source of malfunctions. Lithium batteries, however, can be connected in parallel in applications where high capacity is needed.

It is essential to use PCMs suitable for serial associations that monitor the levels of each battery, as it must isolate the pack in case one of the batteries in series reaches the maximum or minimum levels.

The association of lithium batteries packs in series causes decompensation of the single batteries. This effect appears as the batteries are not exactly equal, even though the batteries in a battery pack must be associated as equal as possible. As they are not equals, they are not charged and discharged at the same time and there will be always a battery in the pack that reaches full charge or discharge before the others, and it will cause the disconnection of the pack by the PCM.

The imbalance of the batteries is a serious problem as the battery pack will be simulating the capacity of the less charged battery of the pack, looking like the pack has less capacity than it could really have.

4.- Cells balance of a battery pack

The balancing is a technique that is applied to battery packs to correct the imbalances that occur between the different cells in a pack. This function can be performed in many ways. FULLWAT PCMs for 2 or more batteries in series incorporates a balancer for each battery. This balancer discharges a portion of the charging current when the battery is about to reach its maximum voltage. With this method the charging process is slows down in the top battery of the pack while the other batteries in the pack are still charging faster. Thus, in each load, the imbalance between the batteries is minimized.

Baterías cilíndricas alta capacidad

Cylindrical high capacity batteries

REFERENCIA PART NUMBER	TAMAÑO SIZE	CAPACIDAD NOMINAL RATED CAPACITY	CORRIENTE MAX. DE DESCARGA MAX. DISCHARGE CURRENT	VOLTAGE NOMINAL RATED VOLTAGE	DIAMETRO DIAMETER	ALTO HEIGHT	PESO WEITGHT
LIR14500-8	AA	800 mAh	1600 mA	3,7 V	14,2 mm	49,0 mm	20,5 gr
LIR18650-20	1865	2000 mAh	2000 mA	3,7 V	18,5 mm	65,0 mm	44, 0 gr
LIR18650-26	1865	2600 mAh	5000 mA	3,7 V	18,5 mm	65,0 mm	48,0 gr
LIR18650-26-CIT	1865	2600 mAh	3000 mA	3,7 V	18,5 mm	70,0 mm	48,0 gr
LIR18650-34	1865	3400 mAh	4875 mA	3,7 V	18,5 mm	65,0 mm	49,0 gr
LIR18650-34-CIT	1865	3400 mAh	3000 mA	3,7 V	18,5 mm	70,0 mm	49,0 gr
LIR22650-30	3/2SC	3000 mAh	3000 mA	3,7 V	22,3 mm	65,5 mm	60,0 gr
LIR26650-50	4/3C	5000 mAh	5000 mA	3,7 V	26,3 mm	65,5 mm	95,0 gr

Baterías cilíndricas alta descarga

Cylindrical high disharge batteries

REFERENCIA PART NUMBER	TAMAÑO SIZE	CAPACIDAD NOMINAL RATED CAPACITY	CORRIENTE MAX. DE DESCARGA MAX. DISCHARGE CURRENT	VOLTAGE NOMINAL RATED VOLTAGE	DIAMETRO DIAMETER	ALTO HEIGHT	PESO WEITGHT
LIR18650R-20	1865	2.000 mAh	20.000 mA	3,7V	18,6 mm	65,5 mm	44,0 gr

Litio Titanato

Lithium Titanate

REFERENCIA PART NUMBER	TAMAÑO SIZE	CAPACIDAD NOMINAL RATED CAPACITY	CORRIENTE MAX. DE DESCARGA MAX. DISCHARGE CURRENT	VOLTAGE NOMINAL RATED VOLTAGE	DIAMETRO DIAMETER	ALTO HEIGHT	PESO WEITGHT
LTI18650-12HU	1865	1200 mAh	12000 mA	2,4V	18,7 mm	65,7 mm	39,5 gr

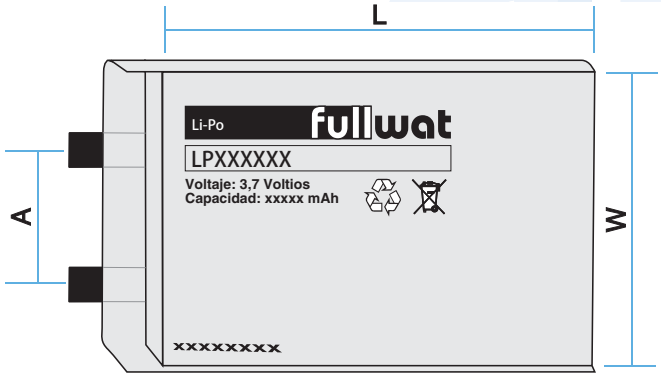
Baterías Soft bag alta capacidad

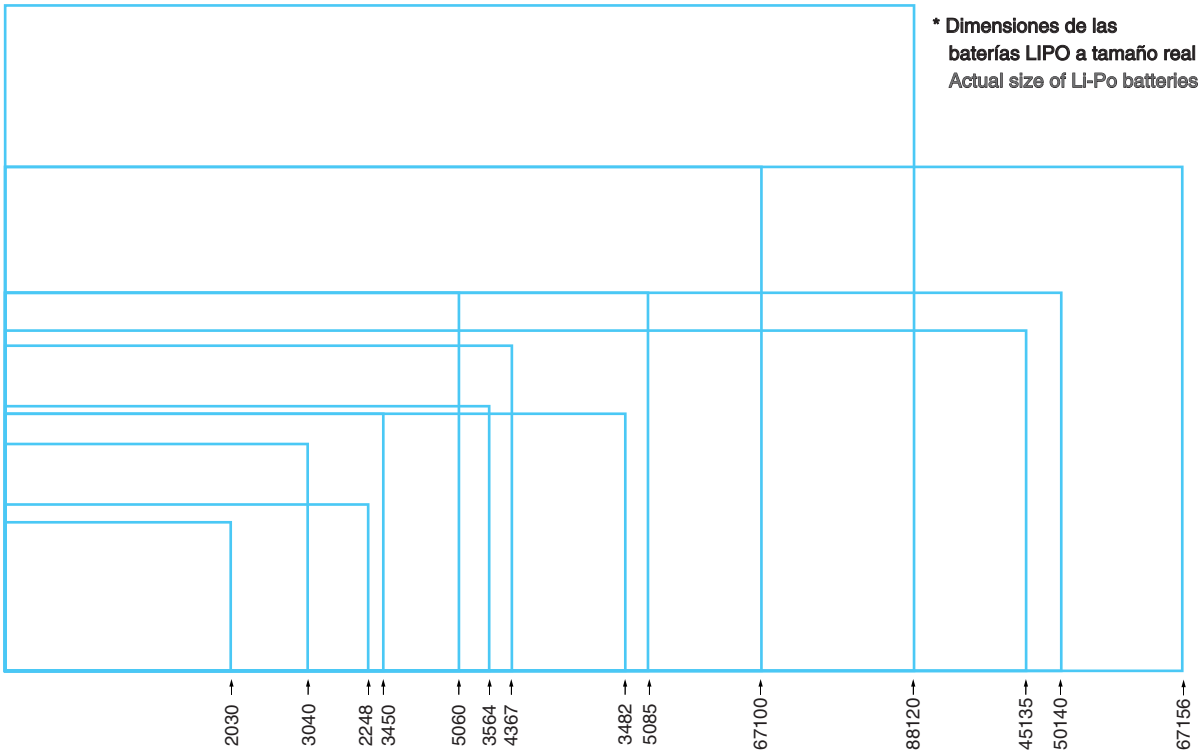
Soft bag high capacity batteries

Tabla de familias

Families reference

FAMILIA FAMILY	REFERENCIA PART NUMBER	W W	L L	A A
2030	LPXX2030	20,0 ± 1 mm	30,0 ± 0,5 mm	10,0 mm
2248	LPXX2248	22,0 ± 1 mm	48,0 ± 0,5 mm	10,0 mm
3040	LPXX3040	30,0 ± 1 mm	40,0 ± 0,5 mm	14,0 mm
3450	LPXX3450	34,0 ± 1 mm	50,0 ± 0,5 mm	17,0 mm
3482	LPXX3482	34,0 ± 1 mm	82,0 ± 0,5 mm	17,0 mm
3564	LPXX3564	35,0 ± 1 mm	64,0 ± 0,5 mm	17,0 mm
4367	LPXX4367	43,0 ± 1 mm	67,0 ± 0,5 mm	24,0 mm
45135	LPXX45135	45,0 ± 1 mm	135,0 ± 0,5 mm	24,0 mm
5060	LPXX5060	50,0 ± 1 mm	60,0 ± 0,5 mm	24,0 mm
5085	LPXX5085	50,0 ± 1 mm	85,0 ± 0,5 mm	24,0 mm
50140	LPXX50140	50,0 ± 1 mm	140,0 ± 0,5 mm	24,0 mm
67100	LPXX67100	67,0 ± 1 mm	100,0 ± 0,5 mm	24,0 mm
67156	LPXX64156	67,0 ± 1 mm	156,0 ± 0,5 mm	32,0 mm
88120	LPXX88120	88,0 ± 1 mm	120,0 ± 0,5 mm	32,0 mm





* Dimensiones de las baterías LIPO a tamaño real
Actual size of Li-Po batteries

Baterías Soft bag alta capacidad

Soft bag high capacity batteries

	REFERENCIA	VOLTAJE	GOSOR	ANCHO	LARGO	CAPACIDAD	PESO
	PART NUMBER	VOLTAGE	THICKNESS	WIDTH	LENGTH	CAPACITY	WEITGHT
2030	LP402030	3,7 V	4,0 ± 0,5 mm	20,0 ± 1,0 mm	30,0 ± 1,0 mm	200,0 mAh	5,0 g
	LP602030	3,7 V	6,0 ± 0,5 mm	20,0 ± 1,0 mm	30,0 ± 1,0 mm	310,0 mAh	7,0 g
	LP802030	3,7 V	8,0 ± 0,5 mm	20,0 ± 1,0 mm	30,0 ± 1,0 mm	410,0 mAh	9,0 g
	LP972030	3,7 V	9,7 ± 0,5 mm	20,0 ± 1,0 mm	30,0 ± 1,0 mm	490,0 mAh	11,0 g
2248	LP402248	3,7 V	4,0 ± 0,5 mm	22,0 ± 1,0 mm	48,0 ± 1,0 mm	360,0 mAh	9,0 g
	LP602248	3,7 V	6,0 ± 0,5 mm	22,0 ± 1,0 mm	48,0 ± 1,0 mm	600,0 mAh	14,0 g
	LP802248	3,7 V	8,0 ± 0,5 mm	22,0 ± 1,0 mm	48,0 ± 1,0 mm	790,0 mAh	17,0 g
	LP972248	3,7 V	9,7 ± 0,5 mm	22,0 ± 1,0 mm	48,0 ± 1,0 mm	910,0 mAh	21,0 g
3040	LP403040	3,7 V	4,0 ± 0,5 mm	30,0 ± 1,0 mm	40,0 ± 1,0 mm	480,0 mAh	11,0 g
	LP603040	3,7 V	6,0 ± 0,5 mm	30,0 ± 1,0 mm	40,0 ± 1,0 mm	740,0 mAh	14,0 g
	LP803040	3,7 V	8,0 ± 0,5 mm	30,0 ± 1,0 mm	40,0 ± 1,0 mm	950,0 mAh	20,0 g
	LP973040	3,7 V	9,7 ± 0,5 mm	30,0 ± 1,0 mm	40,0 ± 1,0 mm	1150,0 mAh	24,0 g
3450	LP403450	3,7 V	4,0 ± 0,5 mm	34,0 ± 1,0 mm	50,0 ± 1,0 mm	650,0 mAh	15,0 g
	LP603450	3,7 V	6,0 ± 0,5 mm	34,0 ± 1,0 mm	50,0 ± 1,0 mm	1050,0 mAh	20,0 g
	LP803450	3,7 V	8,0 ± 0,5 mm	34,0 ± 1,0 mm	50,0 ± 1,0 mm	1400,0 mAh	26,0 g
	LP973450	3,7 V	9,7 ± 0,5 mm	34,0 ± 1,0 mm	50,0 ± 1,0 mm	1800,0 mAh	34,0 g
3482	LP403482	3,7 V	4,0 ± 0,5 mm	34,0 ± 1,0 mm	82,0 ± 1,0 mm	1200,0 mAh	24,0 g
	LP603482	3,7 V	6,0 ± 0,5 mm	34,0 ± 1,0 mm	82,0 ± 1,0 mm	1800,0 mAh	35,0 g
	LP803482	3,7 V	8,0 ± 0,5 mm	34,0 ± 1,0 mm	82,0 ± 1,0 mm	2400,0 mAh	44,0 g
	LP973482	3,7 V	9,7 ± 0,5 mm	34,0 ± 1,0 mm	82,0 ± 1,0 mm	3000,0 mAh	53,0 g
3564	LP403564	3,7 V	4,0 ± 0,5 mm	35,0 ± 1,0 mm	64,0 ± 1,0 mm	950,0 mAh	17,0 g
	LP603564	3,7 V	6,0 ± 0,5 mm	35,0 ± 1,0 mm	64,0 ± 1,0 mm	1130,0 mAh	27,0 g
	LP803564	3,7 V	8,0 ± 0,5 mm	35,0 ± 1,0 mm	64,0 ± 1,0 mm	1800,0 mAh	35,0 g
	LP973564	3,7 V	9,7 ± 0,5 mm	35,0 ± 1,0 mm	64,0 ± 1,0 mm	2200,0 mAh	48,0 g
4060	LP404060	3,7 V	4,0 ± 0,5 mm	40,0 ± 1,0 mm	60,0 ± 1,0 mm	1050,0 mAh	20,0 g
	LP604060	3,7 V	6,0 ± 0,5 mm	40,0 ± 1,0 mm	60,0 ± 1,0 mm	1600,0 mAh	34,0 g
	LP804060	3,7 V	8,0 ± 0,5 mm	40,0 ± 1,0 mm	60,0 ± 1,0 mm	2350,0 mAh	44,0 g
	LP974060	3,7 V	9,7 ± 0,5 mm	40,0 ± 1,0 mm	60,0 ± 1,0 mm	2550,0 mAh	55,0 g
4367	LP404367	3,7 V	4,0 ± 0,5 mm	43,0 ± 1,0 mm	67,0 ± 1,0 mm	1250,0 mAh	26,0 g
	LP604367	3,7 V	6,0 ± 0,5 mm	43,0 ± 1,0 mm	67,0 ± 1,0 mm	1900,0 mAh	38,0 g
	LP804367	3,7 V	8,0 ± 0,5 mm	43,0 ± 1,0 mm	67,0 ± 1,0 mm	2400,0 mAh	46,0 g
	LP974367	3,7 V	9,7 ± 0,5 mm	43,0 ± 1,0 mm	67,0 ± 1,0 mm	3100,0 mAh	60,0 g
45135	LP4045135	3,7 V	4,0 ± 0,5 mm	45,0 ± 1,0 mm	135,0 ± 1,0 mm	2600,0 mAh	54,0 g
	LP6045135	3,7 V	6,0 ± 0,5 mm	45,0 ± 1,0 mm	135,0 ± 1,0 mm	4100,0 mAh	74,0 g
	LP8045135	3,7 V	8,0 ± 0,5 mm	45,0 ± 1,0 mm	135,0 ± 1,0 mm	5500,0 mAh	99,0 g
	LP9745135	3,7 V	9,7 ± 0,5 mm	45,0 ± 1,0 mm	135,0 ± 1,0 mm	6400,0 mAh	119,0 g
5060	LP405060	3,7 V	4,0 ± 0,5 mm	50,0 ± 1,0 mm	60,0 ± 1,0 mm	1250,0 mAh	27,0 g
	LP605060	3,7 V	6,0 ± 0,5 mm	50,0 ± 1,0 mm	60,0 ± 1,0 mm	2000,0 mAh	36,0 g
	LP805060	3,7 V	8,0 ± 0,5 mm	50,0 ± 1,0 mm	60,0 ± 1,0 mm	2600,0 mAh	53,0 g
	LP975060	3,7 V	9,7 ± 0,5 mm	50,0 ± 1,0 mm	60,0 ± 1,0 mm	3200,0 mAh	62,0 g

Baterías Soft bag alta capacidad

Soft bag high capacity batteries

	REFERENCIA PART NUMBER	VOLTAJE VOLTAGE	GOSOR THICKNESS	ANCHO WIDTH	LARGO LENGTH	CAPACIDAD CAPACITY	PESO WEIGHT
5085	LP405085	3,7 V	4,0 ± 0,5 mm	50,0 ± 1,0 mm	85,0 ± 1,0 mm	1800,0 mAh	40,0 g
	LP605085	3,7 V	6,0 ± 0,5 mm	50,0 ± 1,0 mm	85,0 ± 1,0 mm	2800,0 mAh	57,0 g
	LP805085	3,7 V	8,0 ± 0,5 mm	50,0 ± 1,0 mm	85,0 ± 1,0 mm	4000,0 mAh	76,0 g
	LP975085	3,7 V	9,7 ± 0,5 mm	50,0 ± 1,0 mm	85,0 ± 1,0 mm	4500,0 mAh	92,0 g
50140	LP4050140	3,7 V	4,0 ± 0,5 mm	50,0 ± 1,0 mm	140,0 ± 0,5 mm	3050,0 mAh	56,0 g
	LP6050140	3,7 V	6,0 ± 0,5 mm	50,0 ± 1,0 mm	140,0 ± 0,5 mm	4800,0 mAh	92,0 g
	LP8050140	3,7 V	8,0 ± 0,5 mm	50,0 ± 1,0 mm	140,0 ± 0,5 mm	6400,0 mAh	121,0 g
	LP9750140	3,7 V	9,7 ± 0,5 mm	50,0 ± 1,0 mm	140,0 ± 0,5 mm	7800,0 mAh	137,0 g
67100	LP4067100	3,7 V	4,0 ± 0,5 mm	67,0 ± 1,0 mm	100,0 ± 0,5 mm	2800,0 mAh	56,0 g
	LP6067100	3,7 V	6,0 ± 0,5 mm	67,0 ± 1,0 mm	100,0 ± 0,5 mm	4600,0 mAh	88,0 g
	LP8067100	3,7 V	8,0 ± 0,5 mm	67,0 ± 1,0 mm	100,0 ± 0,5 mm	6000,0 mAh	120,0 g
	LP9767100	3,7 V	9,7 ± 0,5 mm	67,0 ± 1,0 mm	100,0 ± 0,5 mm	7300,0 mAh	147,0 g
67156	LP4067156	3,7 V	4,0 ± 0,5 mm	67,0 ± 1,0 mm	156,0 ± 0,5 mm	4700,0 mAh	97,0 g
	LP6067156	3,7 V	6,0 ± 0,5 mm	67,0 ± 1,0 mm	156,0 ± 0,5 mm	7200,0 mAh	131,0 g
	LP8067156	3,7 V	8,0 ± 0,5 mm	67,0 ± 1,0 mm	156,0 ± 0,5 mm	9600,0 mAh	175,0 g
	LP9767156	3,7 V	9,7 ± 0,5 mm	67,0 ± 1 mm	156,0 ± 0,5 mm	11600,0 mAh	236,0 g
88120	LP4088120	3,7 V	4,0 ± 0,5 mm	88,0 ± 1,0 mm	120,0 ± 0,5 mm	4700,0 mAh	93,0 g
	LP6088120	3,7 V	6,0 ± 0,5 mm	88,0 ± 1,0 mm	120,0 ± 0,5 mm	7200,0 mAh	135,0 g
	LP8088120	3,7 V	8,0 ± 0,5 mm	88,0 ± 1,0 mm	120,0 ± 0,5 mm	9600,0 mAh	192,0 g
	LP9788120	3,7 V	9,7 ± 0,5 mm	88,0 ± 1,0 mm	120,0 ± 0,5 mm	13000,0 mAh	208,0 g

LP402030

LP404367

LP4067100

Baterías Soft bag alta capacidad con PCM

Soft bag high capacity batteries with PCM

REFERENCIA / PART NUMBER		VOLTAJE / VOLTAGE	GOSOR / THICKNESS	ANCHO / WIDTH	LARGO / LENGTH	CAPACIDAD / CAPACITY	PESO / WEIGHT	CONECTOR / CONECTOR
2030	LP402030-CI	3,7 V	4,0 ± 0,5 mm	20,0 ± 1,0 mm	35,0 ± 1,0 mm	200,0 mAh	5,0 g	PAP-03V-S
	LP602030-CI	3,7 V	6,0 ± 0,5 mm	20,0 ± 1,0 mm	35,0 ± 1,0 mm	310,0 mAh	7,0 g	PAP-03V-S
	LP802030-CI	3,7 V	8,0 ± 0,5 mm	20,0 ± 1,0 mm	35,0 ± 1,0 mm	410,0 mAh	9,0 g	PAP-03V-S
	LP972030-CI	3,7 V	9,7 ± 0,5 mm	20,0 ± 1,0 mm	35,0 ± 1,0 mm	490,0 mAh	11,0 g	PAP-03V-S
2248	LP402248-CI	3,7 V	4,0 ± 0,5 mm	22,0 ± 1,0 mm	35,0 ± 1,0 mm	360,0 mAh	9,0 g	PAP-03V-S
	LP602248-CI	3,7 V	6,0 ± 0,5 mm	22,0 ± 1,0 mm	35,0 ± 1,0 mm	600,0 mAh	14,0 g	PAP-03V-S
	LP802248-CI	3,7 V	8,0 ± 0,5 mm	22,0 ± 1,0 mm	35,0 ± 1,0 mm	790,0 mAh	17,0 g	PAP-03V-S
	LP972248-CI	3,7 V	9,7 ± 0,5 mm	22,0 ± 1,0 mm	35,0 ± 1,0 mm	910,0 mAh	21,0 g	PAP-03V-S
3040	LP403040-CI	3,7 V	4,0 ± 0,5 mm	30,0 ± 1,0 mm	45,0 ± 1,0 mm	480,0 mAh	11,0 g	PAP-03V-S
	LP603040-CI	3,7 V	6,0 ± 0,5 mm	30,0 ± 1,0 mm	45,0 ± 1,0 mm	740,0 mAh	14,0 g	PAP-03V-S
	LP803040-CI	3,7 V	8,0 ± 0,5 mm	30,0 ± 1,0 mm	45,0 ± 1,0 mm	950,0 mAh	20,0 g	PAP-03V-S
	LP973040-CI	3,7 V	9,7 ± 0,5 mm	30,0 ± 1,0 mm	45,0 ± 1,0 mm	1150,0 mAh	24,0 g	PAP-03V-S
3450	LP403450-CI	3,7 V	4,0 ± 0,5 mm	34,0 ± 1,0 mm	55,0 ± 1,0 mm	650,0 mAh	15,0 g	PAP-03V-S
	LP603450-CI	3,7 V	6,0 ± 0,5 mm	34,0 ± 1,0 mm	55,0 ± 1,0 mm	1050,0 mAh	20,0 g	PAP-03V-S
	LP803450-CI	3,7 V	8,0 ± 0,5 mm	34,0 ± 1,0 mm	55,0 ± 1,0 mm	1400,0 mAh	26,0 g	PAP-03V-S
	LP973450-CI	3,7 V	9,7 ± 0,5 mm	34,0 ± 1,0 mm	55,0 ± 1,0 mm	1800,0 mAh	34,0 g	PAP-03V-S
3482	LP403482-CI	3,7 V	4,0 ± 0,5 mm	34,0 ± 1,0 mm	87,0 ± 1,0 mm	1200,0 mAh	24,0 g	VHR-3N
	LP603482-CI	3,7 V	6,0 ± 0,5 mm	34,0 ± 1,0 mm	87,0 ± 1,0 mm	1800,0 mAh	35,0 g	VHR-3N
	LP803482-CI	3,7 V	8,0 ± 0,5 mm	34,0 ± 1,0 mm	87,0 ± 1,0 mm	2400,0 mAh	44,0 g	VHR-3N
	LP973482-CI	3,7 V	9,7 ± 0,5 mm	34,0 ± 1,0 mm	87,0 ± 1,0 mm	3000,0 mAh	53,0 g	VHR-3N
3564	LP403564-CI	3,7 V	4,0 ± 0,5 mm	35,0 ± 1,0 mm	69,0 ± 1,0 mm	950,0 mAh	17,0 g	PAP-03V-S
	LP603564-CI	3,7 V	6,0 ± 0,5 mm	35,0 ± 1,0 mm	69,0 ± 1,0 mm	1130,0 mAh	27,0 g	PAP-03V-S
	LP803564-CI	3,7 V	8,0 ± 0,5 mm	35,0 ± 1,0 mm	69,0 ± 1,0 mm	1800,0 mAh	35,0 g	PAP-03V-S
	LP973564-CI	3,7 V	9,7 ± 0,5 mm	35,0 ± 1,0 mm	69,0 ± 1,0 mm	2200,0 mAh	48,0 g	PAP-03V-S
4060	LP404060-CI	3,7 V	4,0 ± 0,5 mm	40,0 ± 1,0 mm	68,0 ± 1,0 mm	1050,0 mAh	20,0 g	PAP-03V-S
	LP604060-CI	3,7 V	6,0 ± 0,5 mm	40,0 ± 1,0 mm	68,0 ± 1,0 mm	1600,0 mAh	34,0 g	PAP-03V-S
	LP804060-CI	3,7 V	8,0 ± 0,5 mm	40,0 ± 1,0 mm	68,0 ± 1,0 mm	2350,0 mAh	44,0 g	PAP-03V-S
	LP974060-CI	3,7 V	9,7 ± 0,5 mm	40,0 ± 1,0 mm	68,0 ± 1,0 mm	2550,0 mAh	55,0 g	PAP-03V-S
4367	LP404367-CI	3,7 V	4,0 ± 0,5 mm	43,0 ± 1,0 mm	72,0 ± 1,0 mm	1250,0 mAh	26,0 g	VHR-3N
	LP604367-CI	3,7 V	6,0 ± 0,5 mm	43,0 ± 1,0 mm	72,0 ± 1,0 mm	1900,0 mAh	38,0 g	VHR-3N
	LP804367-CI	3,7 V	8,0 ± 0,5 mm	43,0 ± 1,0 mm	72,0 ± 1,0 mm	2400,0 mAh	46,0 g	VHR-3N
	LP974367-CI	3,7 V	9,7 ± 0,5 mm	43,0 ± 1,0 mm	72,0 ± 1,0 mm	3100,0 mAh	60,0 g	VHR-3N
45135	LP4088120-CI	3,7 V	4,0 ± 0,5 mm	45,0 ± 1,0 mm	125,0 ± 1,0 mm	2600,0 mAh	54,0 g	VHR-3N
	LP6088120-CI	3,7 V	6,0 ± 0,5 mm	4,05 ± 1,0 mm	125,0 ± 1,0 mm	4100,0 mAh	74,0 g	VHR-3N
	LP8088120-CI	3,7 V	8,0 ± 0,5 mm	45,0 ± 1,0 mm	125,0 ± 1,0 mm	5500,0 mAh	99,0 g	VHR-3N
	LP9788120-CI	3,7 V	9,7 ± 0,5 mm	45,0 ± 1,0 mm	125,0 ± 1,0 mm	6400,0 mAh	119,0 g	VHR-3N
5060	LP405060-CI	3,7V	4,0 ± 0,5 mm	50,0 ± 1,0 mm	65,0 ± 1,0 mm	1250,0 mAh	27,0 g	VHR-3N
	LP605060-CI	3,7V	6,0 ± 0,5 mm	50,0 ± 1,0 mm	65,0 ± 1,0 mm	2000,0 mAh	36,0 g	VHR-3N
	LP805060-CI	3,7V	8,0 ± 0,5 mm	50,0 ± 1,0 mm	65,0 ± 1,0 mm	2600,0 mAh	53,0 g	VHR-3N
	LP975060-CI	3,7V	9,7 ± 0,5 mm	50,0 ± 1,0 mm	65,0 ± 1,0 mm	3200,0 mAh	62,0 g	VHR-3N

LP402030-CI

LP403450-CI

LP404367-CI

Baterías Soft bag alta capacidad con PCM

Soft bag high capacity batteries with PCM

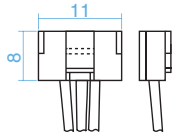
REFERENCIA / PART NUMBER		VOLTAJE / VOLTAGE	GOSOR / THICKNESS	ANCHO / WIDTH	LARGO / LENGTH	CAPACIDAD / CAPACITY	PESO / WEIGHT	CONECTOR / CONECTOR
5085	LP405085-CI	3,7V	4,0 ± 0,5 mm	50,0 ± 1,0 mm	90,0 ± 1,0 mm	1800,0 mAh	40,0 g	VHR-3N
	LP605085-CI	3,7V	6,0 ± 0,5 mm	50,0 ± 1,0 mm	90,0 ± 1,0 mm	2800,0 mAh	57,0 g	VHR-3N
	LP805085-CI	3,7V	8,0 ± 0,5 mm	50,0 ± 1,0 mm	90,0 ± 1,0 mm	4000,0 mAh	76,0 g	VHR-3N
	LP975085-CI	3,7V	9,7 ± 0,5 mm	50,0 ± 1,0 mm	90,0 ± 1,0 mm	5000,0 mAh	92,0 g	VHR-3N
50140	LP4050140-CI	3,7 V	4,0 ± 0,5 mm	50,0 ± 1,0 mm	140,0 ± 0,5 mm	3050 mAh	56,0 g	VHR-3N
	LP6050140-CI	3,7 V	6,0 ± 0,5 mm	50,0 ± 1,0 mm	140,0 ± 0,5 mm	4800 mAh	92,0 g	VHR-3N
	LP8050140-CI	3,7 V	8,0 ± 0,5 mm	50,0 ± 1,0 mm	140,0 ± 0,5 mm	6400 mAh	121,0 g	VHR-3N
	LP9750140-CI	3,7 V	9,7 ± 0,5 mm	50,0 ± 1,0 mm	140,0 ± 0,5 mm	7800 mAh	137,0 g	VHR-3N
67100	LP4067100-CI	3,7 V	4,0 ± 0,5 mm	67,0 ± 1,0 mm	105,0 ± 0,5 mm	2800 mAh	56,0 g	VHR-3N
	LP6067100-CI	3,7 V	6,0 ± 0,5 mm	67,0 ± 1,0 mm	105,0 ± 0,5 mm	4600 mAh	88,0 g	VHR-3N
	LP8067100-CI	3,7 V	8,0 ± 0,5 mm	67,0 ± 1,0 mm	105,0 ± 0,5 mm	6000 mAh	120,0 g	VHR-3N
	LP9767100-CI	3,7 V	9,7 ± 0,5 mm	67,0 ± 1,0 mm	105,0 ± 0,5 mm	7300 mAh	147,0 g	VHR-3N
67156	LP4067156-CI	3,7 V	4,0 ± 0,5 mm	67,0 ± 1,0 mm	156,0 ± 0,5 mm	4700 mAh	97,0 g	VHR-3N
	LP6067156-CI	3,7 V	6,0 ± 0,5 mm	67,0 ± 1,0 mm	156,0 ± 0,5 mm	7200 mAh	131,0 g	VHR-3N
	LP8067156-CI	3,7 V	8,0 ± 0,5 mm	67,0 ± 1,0 mm	156,0 ± 0,5 mm	10500 mAh	175,0 g	VHR-3N
	LP9767156-CI	3,7 V	9,7 ± 0,5 mm	67,0 ± 1,0 mm	156,0 ± 0,5 mm	13000 mAh	236,0 g	VHR-3N
88120	LP4088120-CI	3,7 V	4,0 ± 0,5 mm	88,0 ± 1,0 mm	120,0 ± 0,5 mm	4700 mAh	93,0 g	VHR-3N
	LP6088120-CI	3,7 V	6,0 ± 0,5 mm	88,0 ± 1,0 mm	120,0 ± 0,5 mm	7200 mAh	135,0 g	VHR-3N
	LP8088120-CI	3,7 V	8,0 ± 0,5 mm	88,0 ± 1,0 mm	120,0 ± 0,5 mm	10500 mAh	192,0 g	VHR-3N
	LP9788120-CI	3,7 V	9,7 ± 0,5 mm	88,0 ± 1,0 mm	120,0 ± 0,5 mm	13000 mAh	208,0 g	VHR-3N

Conectores - Serie VH y PA

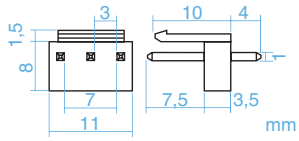
Connector - Serie VH y PA

VH

VHR-3N



B3PVH-LF



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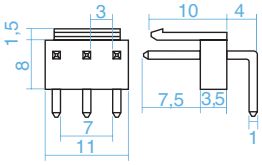
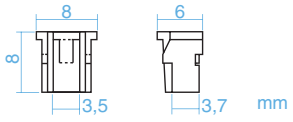


PA

PAP-O3V-S



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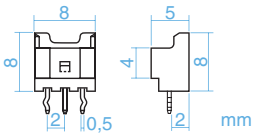

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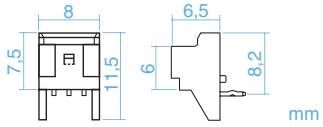
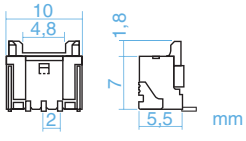


BM03BPASS-TBT-TF



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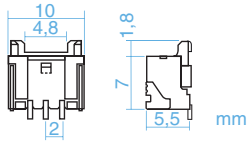

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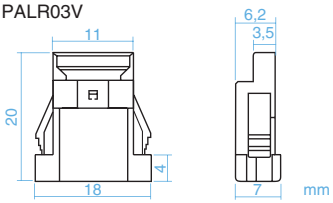


Baterías cilíndricas alta capacidad

Cylindrical high capacity batteries

REFERENCIA PART NUMBER	TAMAÑO SIZE	CAPACIDAD NOMINAL RATED CAPACITY	CORRIENTE MAX. DE DESCARGA MAX. DISCHARGE CURRENT	VOLTAGE NOMINAL RATED VOLTAGE	DIAMETRO DIAMETRE	ALTO HEIGTH	PESO WEIGTH
LFP14500-6	AA	600 mAh	1200 mA	3,2 V	13,9 mm	48,5 mm	17,0 gr
LFP18650-12HU	1865	1200 mAh	10000 mA	3,2 V	18,9 mm	66,0 mm	39,0 gr
LFP18650-15	1865	1500 mAh	3000 mA	3,2 V	18,3 mm	65,0 mm	40,0 gr
LFP22650OC-20	1865	2000 mAh	6000 mA	3,2 V	22,4 mm	65,8 mm	52,0 gr
LFP26650-32	4/3C	3200 mAh	6400 mA	3,2 V	26,0 mm	65,5 mm	82,0 gr
LFP32600-35	D	3.00 mAh	10500 mA	3,2 V	32,2 mm	60,5 mm	125,0 gr

Baterías cilíndricas alta temperatura

Cylindrical high temperature batteries

REFERENCIA PART NUMBER	VOLTAGE NOMINAL RATED VOLTAGE	CAPACIDAD NOMINAL RATED CAPACITY	DIAMETRO DIAMETER	ALTO HEIGHT	PESO WEIGHT
LFPH14500-06	3,2 V	600 mAh	13,9 mm	48,5 mm	19,0 g
LFPH14650-08	3,2 V	850 mAh	13,9 mm	65,0 mm	25,0 g
LFPH18650-15	3,2 V	1500 mAh	18,0 mm	65,0 mm	40,0 g
LFPH26650-32	3,2 V	3200 mAh	26,0 mm	65,0 mm	83,0 g

fullwat®

su batería a medida

full custom battery

Fabricamos la batería adecuada a sus necesidades

We manufacture the right batteries for your own needs

Packs de baterías de Litio

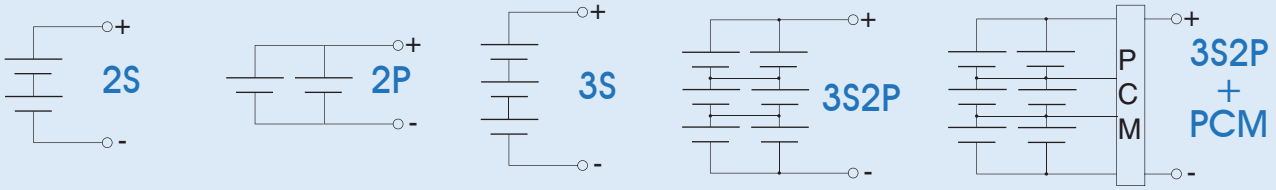
Las baterías de Litio tienen un voltaje de 3,6V, 3,2V ó 2,4V según la tecnología. Frecuentemente los equipos electrónicos necesitan un voltaje o una capacidad que no se alcanza con una célula individual lo que obliga a asociar varias células en serie o paralelo.
Cuando se asocian baterías en serie (Fig. 2S) el voltaje final del pack es la suma de los voltajes individuales. Cuando se asocian en paralelo el voltaje es el de una batería mientras que las capacidades se suman.
Con esta premisa es posible hacer diferentes asociaciones serie o paralelo pero es necesario tener una serie de precauciones para garantizar el correcto funcionamiento del pack.

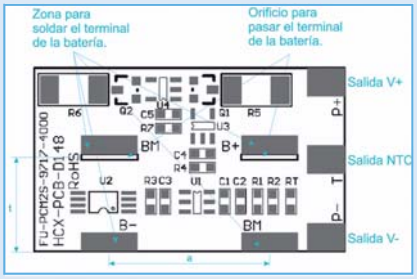
- El pack debe estar formado por el menor número de baterías posible.
- Las baterías de un pack deben ser lo más parecidas posibles. Misma impedancia, capacidad y voltaje en abierto. Es lo que se llaman baterías emparejadas ("matched").
- Cuantas más baterías tenga el pack más inestable será y aumentará el riesgo de deterioro prematuro.
- La asociación en paralelo es especialmente delicada por lo que se desaconseja unir más de 4 baterías en paralelo.
- La probabilidad de fallo en un pack crece en función del número de células. Si una determinada batería tiene una tasa de fallo del 0,03%, un pack con 20 células tendrá una tasa de fallo de 0,6% (20 x 0,03%) ya que el fallo de una sola célula provoca el fallo general del pack. Si un pack tiene 60 baterías, la tasa de fallo asciende a 1,8%.
- Un pack con dos o más baterías de litio en serie requiere un circuito de protección que monitorice el voltaje individual de cada batería. A pesar que las baterías que forman un pack deben ser muy parecidas es casi imposible que dos de ellas sean exactamente iguales. Por ello no hay ninguna garantía de que, en un pack de dos, cada batería tenga el 50% del voltaje general del pack. Las baterías de litio son especialmente sensibles al exceso de voltaje de carga. Así una batería de litio-cobalto tiene un voltaje máximo de carga de 4,2V con una tolerancia de tan solo +0,05V (1,2%). Un pack de dos baterías en serie que está a 8,4V.

Lithium battery packs

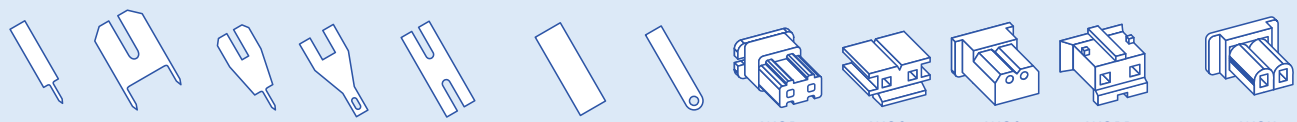
Lithium secondary batteries have both voltages 3.6V , 3.2V or 2,4V depending on the chemistry. Electronic devices often need a voltage or capacity which is not reached with a single cell. That's why it is necessary to associate multiple batteries in series or parallel.
When batteries are associated in series (Fig. 2S) final voltage of pack is the sum of the individual voltages. When batteries are associated in parallel the final voltage of the pack is the same voltage of a single battery but the capacity is the sum of the individual capacities.
With this premise it is possible to make lithium secondary batteries associations in series or in parallel with several cautions to ensure proper functioning of the pack.

- The pack should be formed by the smallest possible number of batteries.
- Batteries used in a pack should be as similar as possible. Same impedance, same capacity and same open circuit voltage. This is called matched batteries.
- The more batteries are in the pack, the more unstable will be the pack and the risk of early deterioration will increase.
- The parallel combination is particularly sensitive. That is why it is not advisable to join more than 4 batteries in parallel.
- The probability of failure in a pack increases depending on the number of cells. If a battery has a failure rate of 0.03%, a pack with 20 cells have a failure rate of 0.6% (20 x 0.03%) since the failure of a single cell causes the general failure of the pack. If a pack has 60 batteries, the failure rate is 1.8%.
- A pack with two or more lithium secondary batteries in series requires a protection circuit that monitors individually the voltage of each battery. Although batteries associates in a pack must be very similar, it is almost impossible that two of them are exactly the same. Therefore there is no guarantee that in a pack with two batteries, each battery is the 50% of the overall pack voltage. Lithium secondary batteries are particularly sensitive to excessive load voltage. Therefore, a lithium-cobaltite battery has a maximum charging voltage of 4.2V with a tolerance of only + 0,05V (1.2%). A pack of two batteries in series is 8.4V.

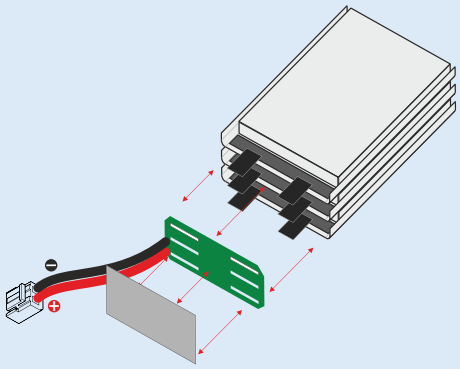




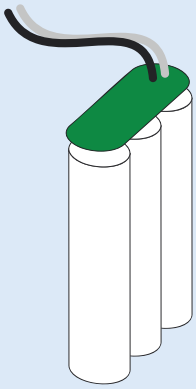
Terminales y conectores / Terminals and connectors



Pack hecho a medida según requisitos de cliente
OEM battery pack acording to customer requirement



Ejemplo de pack de baterías soft bag + PCM
Example of pack made with soft bag cells + PCM



Ejemplo de pack de baterías cilíndricas + PCM
Example of pack made with cylindrical cells + PCM

BATERÍAS CON BASE DE NÍQUEL

BATTERIES WITH NICKEL BASIS

Tele asistencia
Elder assistance

Luz de emergencia
Emergency light

Linterna profesional
Professional flashlight

Tijeras de podar
Pruning scissors

1.- Descripción

Son baterías en las que el electrodo positivo es de Hidróxido de Níquel y el electrodo negativo puede ser de Cadmio (Ni-Cd) o aleaciones absorbentes de hidrógeno (Ni-MH).

A pesar del desarrollo de nuevas tecnologías en los últimos años, las baterías de Ni-Cd o Ni-MH siguen teniendo su espacio.

Las baterías de Níquel no pueden competir en densidad de energía con las baterías de Litio pero sobresalen en algunos aspectos como su robustez, número de ciclos, durabilidad, etc. Las baterías de Níquel tienen un papel destacado en aplicaciones de tipo industrial donde la robustez prima sobre el peso o volumen.

2.- Carga

La técnica de carga de batería es por "corriente constante". Aunque el voltaje de la batería se incrementa durante el proceso de carga no existe una relación directa entre el voltaje y el nivel de carga.

Es un error frecuente pretender cargar las baterías de Níquel hasta un determinado nivel de voltaje.

Las baterías de Níquel son menos eficaces durante la carga que las baterías de Litio. Aproximadamente un 30-40% de la energía suministrada a la batería durante el proceso de carga se pierde en forma de calor.

El procedimiento estándar de carga consiste en cargar la batería a una intensidad C/10 durante 14-16 horas donde "C" es la capacidad de la batería.

Suele utilizarse un método alternativo de carga denominado "trickle" con una intensidad igual o inferior a C/20. Esta técnica permite continuar cargando la batería aunque ya se haya cargado totalmente. La intensidad es lo suficientemente pequeña como para que la energía se disipe en forma de calor sin provocar un aumento gave de la temperatura en la batería.

Es posible también hacer cargas más rápidas que C/10 pero es necesario "supervisar" la carga, porque si la batería llega a su fin de carga y sigue recibiendo una intensidad considerable, se genera una temperatura elevada en la batería que puede provocar fácilmente su deterioro. Cuando se produce un decremento del voltaje se da por finalizada la carga. Este es un efecto que se da cuando seguimos cargando una batería después de que está completamente cargada. Durante toda la fase de carga, el voltaje va subiendo, pero cuando la batería se carga del todo, el voltaje disminuye ligeramente y luego se mantiene constante en función de la temperatura.

3.- Descarga

Las baterías se deben descargar en un rango de temperatura de 10º-65º.

Hay diferentes familias de baterías que pueden dar mayor o menor nivel de intensidad. La capacidad de dar más intensidad está relacionada con la impedancia interna. Esta produce una caída de tensión y calor directamente proporcional a la impedancia y la intensidad. Para poder entregar intensidades elevadas es necesario impedancias muy bajas.

El gosor de los terminales de conexión afecta cuando la intensidad es elevada. Son necesarios terminales guesos con baja resistencia que produzcan caídas de voltaje muy pequeñas.

También es necesario proteger la batería contra sobre-descargas. Si la batería permanece conectada al equipo por un periodo largo de tiempo, cuando esta descargada se dañará.

Una batería se considera descargada cuando el voltaje es menor de 1V.

1.- Description

They are batteries in which the positive electrode is nickel hydroxide and the negative electrode can be cadmium (Ni-Cd) or hydrogen absorbing alloys (Ni-MH). Despite the development of new technologies in recent years, Ni-Cd or Ni-MH batteries still have their space. Nickel batteries can not compete in energy density with lithium batteries but they stand out in some aspects such as robustness, number of cycles, endurance, etc. Nickel batteries have a prominent role in industrial applications where the robustness predominates over weight or volume.

2.- Charge

The battery charging technique is "constant current". Although the battery voltage increases during charging there is no direct relationship between voltage and charge level. It is a common mistake to charge nickel batteries up to a certain voltage level.

Nickel batteries are less effective when charging than lithium batteries. Approximately 30-40% of the energy supplied to the battery during the charging process is lost as heat.

The standard charging procedure consists of charging the battery at a current C / 10 for 14-16 hours where "C" is the battery capacity.

Also can be used an alternative charging method called "trickle" with a charging current equal or lower to C / 20. This technique allows to continue charging the battery, even if it is already fully charged. The current is small enough so the energy is dissipated as heat without causing a serious increase in battery temperature.

It is also possible to make a faster charging process than C / 10 but it is necessary "monitor" the charging process because if the battery reaches end of charge and continues receiving a high current, a high temperature is generated in the battery that could easily deteriorate the battery. The way to check if the battery is charged is when a negative voltage increase occurs. This is an effect that occurs when we keep charging a battery after it is fully charged. Throughout the charging process voltage rises but when the battery reaches full charge state voltage decreases slightly and then remains constant as a function of temperature.

3.- Discharge

Batteries must be discharged in the temperature range of 10º~ 65ºC.

There are different families of batteries that can provide varying levels of current. The ability to supply high currents is related to the internal impedance. There is a voltage drop and a heat generation directly proportional to the impedance and to the current. To supply high currents it is required very low impedances.

When current is high the thickness of connection terminals are important. They are necessary thick terminals with very low resistance to produce very small voltage drops.

It is necessary to protect the battery from over-discharge. If the battery remains connected to the load for a long period of time when it is discharged, the battery will be damaged.

A battery is considered discharged when the voltage is less than 1V.

4.- Battery packs

The association of batteries in packs is often necessary to get a battery with voltage and capacity to meet the needs of electronic devices. The association of nickel batteries is relatively simple. They only can be associated in series.

4.- Asociación de baterías

La asociación de baterías en “packs” es frecuente ante la necesidad de conseguir una batería con el voltaje y la capacidad necesarios para cubrir las necesidades de los dispositivos electrónicos.

La asociación de baterías de Níquel es relativamente sencilla. Pueden asociarse sólo en serie. El requisito para unir baterías en serie es que estén emparejadas (”matched”). Las baterías de un pack deben tener la misma capacidad, la misma impedancia y el mismo voltaje en reposo.

Es recomendable utilizar dispositivos que protejan o monitoricen el estado de la batería

- Polyswitch: Es un polímero que presenta una resistencia muy baja (casi nula) pero que aumenta radicalmente la resistencia cuando se calienta por el calor de la intensidad. De esta forma el efecto final es una especie de fusible re-armable que se corta cuando la intensidad es elevada y se re-arma cuando se enfría, al cabo de unos instantes.
- Termofusible: Es un dispositivo que se corta cuando la temperatura supera un determinado valor. No es reversible.
- Termostato: Es un bi-metal normalmente cerrado que se abre cuando la temperatura se eleva. Cuando se enfría se re-arma.
- NTC (Negative Temperature Coefficient): Es un componente electrónico que disminuye la resistencia según aumenta su temperatura. Se coloca en contacto con las baterías y un circuito inteligente externo puede monitorizar las variaciones de temperatura de las baterías.
-

The requirement to connect batteries in series is they are matched. The cells of a battery pack must have the same capacity, the same impedance and the same initial voltage.

We recommend using devices that protect or monitor the battery status.

- Polyswitch: A polymer having a very low resistance (virtually nil) but radically increases the resistance when is heated by the heat of current. Thus the final effect is a kind of reseteable fuse which cuts when the intensity is high and reset when cooled within a few seconds.
- Thermofuse: A device that is cut when the temperature exceeds a certain value. It is not reversible.
- Thermostat: A bimetal which is normally closed and it opens when the temperature rises. When cooled it is reset.
- NTC: It is an electronic component that decreases resistance with increasing temperature. It is placed in contact with the batteries and an external intelligent circuit can monitor variations in battery temperature.

Baterías cilíndricas alta capacidad

High capacity cylindrical batteries

TAMAÑO SIZE	REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA ESTÁNDAR STANDARD DISCHARGE	DIÁMETRO DIAMETER	ALTURA HEIGHT	PESO WEIGHT
1/3AAA	NH120AAAJF	1,2 V	120 mAh	12,0 mA	10,1 mm	15,0 mm	4,1 g
2/3AAA	NH300AAAJF	1,2 V	300 mAh	30,0 mA	10,1 mm	27,5 mm	7,0 g
AAA	NH600AAAJF	1,2 V	600 mAh	60,0 mA	10,1 mm	43,6 mm	13,0 g
AAA	NH700AAAJF	1,2 V	700 mAh	70,0 mA	10,1 mm	43,6 mm	43,6 g
AAA	NH800AAAJF	1,2 V	800 mAh	80,0 mA	10,1 mm	43,6 mm	15,5 g
N	NH500NJF	1,2 V	500 mAh	50,0 mA	12,0 mm	29,3 mm	8,6 g
1/3AA	NH300AAJF	1,2 V	300 mAh	30,0 mA	14,1 mm	16,5 mm	16,5 g
2/3AA	NH650AAJF	1,2 V	650 mAh	65,0 mA	14,1 mm	28,0 mm	14,4 g
AA	NH1200AAJF	1,2 V	1200 mAh	120,0 mA	14,1 mm	48,0 mm	26,0 g
AA	NH1600AAJF	1,2 V	1600 mAh	160,0 mA	14,1 mm	48,0 mm	29,0 g
AA	NH1800AAJF	1,2 V	1800 mAh	180,0 mA	14,1 mm	48,0 mm	36,0 g
AA	NH2000AAJF	1,2 V	2000 mAh	200,0 mA	14,1 mm	48,0 mm	31,0 g
AA	NH2200AAJF	1,2 V	2200 mAh	220,0 mA	14,1 mm	48,0 mm	33,0 g
1/2A	NH1000AJF	1,2 V	1000 mAh	100,0 mA	16,8 mm	28,0 mm	21,0 g
1/2A	NH1100AJF	1,2 V	1100 mAh	110,0 mA	16,8 mm	28,0 mm	21,6 g
4/5A	NH1800AEJF	1,2 V	1800 mAh	180,0 mA	16,8 mm	42,1 mm	43,0 g
A	NH2100AJF	1,2 V	2100 mAh	210,0 mA	16,8 mm	49,0 mm	34,0 g
7/5A	NH3500AJF	1,2 V	3500 mAh	350,0 mA	16,8 mm	65,9 mm	54,5 g
7/5A	NH3800AJF	1,2 V	3800 mAh	380,0 mA	16,8 mm	65,9 mm	54,7 g
4/5SC	NH2000SCJF	1,2 V	2000 mAh	200,0 mA	22,1 mm	32,1 mm	43,0 g
SC	NH2400SCJF	1,2 V	2400 mAh	240,0 mA	22,1 mm	42,0 mm	51,0 g
SC	NH3300SCJF	1,2 V	3300 mAh	330,0 mA	22,1 mm	42,0 mm	56,0 g
C	NH4000CJF	1,2 V	4000 mAh	400,0 mA	25,3 mm	49,0 mm	85,0 g
C	NH4500CJF	1,2 V	4500 mAh	450,0 mA	25,3 mm	49,0 mm	89,0 g
1/2D	NH3500DJF	1,2 V	3500 mAh	350,0 mA	32,2 mm	35,0 mm	85,0 g
D	NH9000DJF	1,2 V	9000 mAh	900,0 mA	32,2 mm	59,0 mm	153,0 g
D	NH9500DJF	1,2 V	9500 mAh	950,0 mA	32,2 mm	59,0 mm	156,0 g
F	NH13000FJF	1,2 V	13000 mAh	1300,0 mA	32,2 mm	89,0 mm	255,0 g

Baterías cilíndricas alta capacidad

High capacity cylindrical batteries

TAMAÑO SIZE	REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA ESTÁNDAR STANDARD DISCHARGE	DIÁMETRO DIAMETER	ALTURA HEIGHT	PESO WEIGHT
1/3AA	N170AAJF	1,2 V	170 mAh	17,0 mA	14,1 mm	16,5 mm	7,5 g
2/3AA	N400AAJF	1,2 V	400 mAh	40,0 mA	14,1 mm	42,6 mm	8,5 g
AA	N1000AAJF	1,2 V	1000 mAh	100,0 mA	14,1 mm	48,0 mm	25,0 g
1/2A	N700AEJF	1,2 V	700 mAh	70,0 mA	16,8 mm	28,8 mm	16,0 g
4/5A	N1200AEJF	1,2 V	1200 mAh	120,0 mA	16,8 mm	42,1 mm	28,0 g
A	N1400AJF	1,2 V	1400 mAh	140,0 mA	16,8 mm	49,0 mm	33,0 g
SC	N1500SCJF	1,2 V	1500 mAh	150,0 mA	22,1 mm	42,0 mm	44,0 g
SC	N2000SCEJF	1,2 V	2000 mAh	200,0 mA	22,1 mm	42,0 mm	48,0 g
C	N2800CJF	1,2 V	2800 mAh	280,0 mA	25,3 mm	49,0 mm	75,0 g
1/2D	N2500DJF	1,2 V	2500 mAh	250,0 mA	32,2 mm	35,0 mm	66,0 g
D	N4000DJF	1,2 V	4000 mAh	400,0 mA	32,2 mm	59,0 mm	120,0 g
D	N4400DJF	1,2 V	4400 mAh	440,0 mA	32,2 mm	59,0 mm	123,0 g
D	N5000DJF	1,2 V	5000 mAh	500,0 mA	32,2 mm	59,0 mm	130,0 g
F	N7000FJF	1,2 V	7000 mAh	700,0 mA	32,2 mm	89,0 mm	185,0 g
F	N8000FJF	1,2 V	8000 mAh	800,0 mA	32,2 mm	89,0 mm	195,0 g

Baterías alta descarga

High discharge batteries

TAMAÑO	REFERENCIA	VOLTAJE NOMINAL	CAPACIDAD NOMINAL	DESCARGA ESTÁNDAR	DESCARGA CORRIENTE MAX. CONTINUA	DIÁMETRO	ALTURA	PESO	TECNOLOGÍA
SIZE	PART NUMBER	RATED VOLTAGE	RATED CAPACITY	STANDARD DISCHARGE	MAX. DISCHARGE CURRENT CONTINOUS	DIAMETER	HEIGHT	WEIGHT	TECHNOLOGY
1/2A	NH11001/2ABFR	1,2 V	1100 mAh	220 mA	5,5 A	17,0 mm	28,2 mm	21,0 g	Ni-MH
AA	NH900AAJFR	1,2 V	900 mAh	180 mA	4,5 A	14,0 mm	48,5 mm	19,0 g	Ni-MH
AA	NH1600AABFR	1,2 V	1600 mAh	320 mA	8,0 A	14,2 mm	50,0 mm	26,0 g	Ni-MH
4/5SC	NH1600SCJFR	1,2 V	1600 mAh	320 mA	16,0 A	22,5 mm	33,5 mm	35,0 g	Ni-MH
4/5SC	NH1600SCJFRP	1,2 V	1600 mAh	320 mA	16,0 A	23,5 mm	33,5 mm	35,5 g	Ni-MH
SC	N2100SCJFR	1,2 V	2000 mAh	400 mA	20,0 A	22,1 mm	42,5 mm	49,0 g	Ni-Cd
SC	NH3000SCHFRP	1,2 V	3000 mAh	600 mA	30,0 A	22,5 mm	42,5 mm	51,8 g	Ni-MH
SC	NH3800SCHFR	1,2 V	3800 mAh	760 mA	19,0 A	23,5 mm	43,5 mm	61,0 g	Ni-MH
SC	NH4100SCBFRP	1,2 V	4100 mAh	820 mA	20,5 A	23,2 mm	43,5 mm	65,0 g	Ni-MH
D	NH9500DBFRP	1,2 V	9500 mAh	1900 mA	76,0 A	32,5 mm	60,5 mm	155,5 g	Ni-MH

Baterías alta temperatura

High temperature batteries

TAMAÑO	REFERENCIA	VOLTAJE NOMINAL	CAPACIDAD NOMINAL	DESCARGA ESTÁNDAR	CORRIENTE EN FLOTACIÓN	DIÁMETRO	ALTURA	PESO	TECNOLOGÍA
SIZE	PART NUMBER	RATED VOLTAGE	RATED CAPACITY	STANDARD DISCHARGE	TRICKLE	DIAMETER	HEIGHT	WEIGHT	TECHNOLOGY
AAA	NH600AAAJFH	1,2 V	600 mAh	60,0 mA	30,0 mA	10,1 mm	43,6 mm	13,3 g	Ni-MH
AA	N800AAJFH	1,2 V	800 mAh	80,0 mA	40,0 mA	14,1 mm	48,0 mm	23,2 g	Ni-Cd
AA	NH1300AAJFH	1,2 V	1300 mAh	130 mA	65,0 mA	14,1 mm	48,0 mm	28,7 g	Ni-MH
AA	NH1500AAJFH	1,2 V	1500 mAh	150,0 mA	75,0 mA	14,1 mm	48,0 mm	29,6 g	Ni-MH
AA	NH1800AAJFH	1,2 V	1800 mAh	180,0 mA	90,0 mA	14,1 mm	48,0 mm	36,8 g	Ni-MH
SC	N1500SCJFH	1,2 V	1500 mAh	150,0 mA	75,0 mA	22,1 mm	42,0 mm	46,0 g	Ni-Cd
SC	N1800SCJFH	1,2 V	1800 mAh	180,0 mA	90,0 mA	22,1 mm	42,0 mm	47,1 g	Ni-Cd
SC	NH1800SCJFH	1,2 V	1800 mAh	180,0 mA	90,0 mA	22,1 mm	42,0 mm	48,2 g	Ni-MH
SC	NH2400SCJFH	1,2 V	2400 mAh	240,0 mA	120,0 mA	22,1 mm	42,0 mm	51,4 g	Ni-MH
SC	NH3000SCJFH	1,2 V	3000 mAh	300,0 mA	150,0 mA	22,1 mm	42,0 mm	54,5 g	Ni-MH
C	N2500CJFH	1,2 V	2500 mAh	250,0 mA	125,0 mA	25,3 mm	49,0 mm	73,8 g	Ni-Cd
C	NH3800CJFH	1,2 V	3800 mAh	380,0 mA	190,0 mA	25,3 mm	49,0 mm	76,2 g	Ni-MH
C	NH4000CJFH	1,2 V	4000 mAh	400,0 mA	200,0 mA	25,3 mm	49,0 mm	77,4 g	Ni-MH
1/2D	N2500DJFH	1,2 V	2500 mAh	250,0 mA	125,0 mA	32,2 mm	35,0 mm	67,3 g	Ni-Cd
D	N4000DJFH	1,2 V	4000 mAh	400,0 mA	200,0 mA	32,2 mm	59,0 mm	124,4 g	Ni-Cd
D	N4400DJFH	1,2 V	4400 mAh	440,0 mA	220,0 mA	32,2 mm	59,0 mm	129,1 g	Ni-Cd
D	NH7000DJFH	1,2 V	7000 mAh	700,0 mA	350,0 mA	32,2 mm	59,0 mm	151,6 g	Ni-MH

Baterías de botón

Button batteries

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA ESTÁNDAR STANDARD DISCHARGE	CORRIENTE EN FLOTACION TRICKLE CURRENT	DIMENSIONES DIMENSIONS	PESO WEIGHT
NH15BJ	1,2 V	15 mAh	1,5 mA	0,5 mA	Ø11,8 x 3,17 mm	1,0 g
NH40BJ	1,2 V	40 mAh	4,0 mA	1,2 mA	Ø11,8 x 5,17 mm	1,7 g
NH80BJ	1,2 V	80 mAh	8,0 mA	2,4 mA	Ø15,3 x 6,10 mm	3,2 g
NH110BJ	1,2 V	110 mAh	11,0 mA	3,3 mA	Ø15,3 x 7,75 mm	3,6 g
NH160BJ	1,2 V	160 mAh	16,0 mA	4,8 mA	23,3 x 15,0 x 5,28 mm	5,3 g
NH230BJ	1,2 V	230 mAh	23,0 mA	7,0 mA	Ø25,1 x 6,25 mm	8,6 g
NH280BJ	1,2 V	280 mAh	28,0 mA	8,4 mA	Ø25,1 x 7,35 mm	11,0 g
NH330BJ	1,2 V	330 mAh	33,0 mA	9,9 mA	Ø25,1 x 8,45 mm	11,6 g

Packs de baterías de botón

Button cell battery packs

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA ESTÁNDAR STANDARD DISCHARGE	CORRIENTE EN FLOTACION TRICKLE CURRENT	DIMENSIONES DIMENSIONS	PESO WEIGHT
3NH15BJP2	3,6 V	15 mAh	1,5 mA	0,5 mA	Ø11,8 x 10,51 mm	3,4 g
3NH40BJP2	3,6 V	40 mAh	4,0 mA	1,2 mA	Ø11,8 x 16,51 mm	5,5 g
2NH80BJP2	2,4 V	80 mAh	8,0 mA	2,4 mA	Ø15,3 x 12,95 mm	6,7 g
2NH80BJP3	2,4 V	80 mAh	8,0 mA	2,4 mA	Ø15,3 x 12,95 mm	6,7 g
3NH80BJP2	3,6 V	80 mAh	8,0 mA	2,4 mA	Ø15,3 x 19,30 mm	10,0 g
3NH80BJP3	3,6 V	80 mAh	8,0 mA	2,4 mA	Ø15,3 x 19,30 mm	10,0 g
3NH110BJP2	3,6 V	110 mAh	11,0 mA	3,3 mA	Ø15,3 x 24,25 mm	11,2 g
3NH110BJP3	3,6 V	110 mAh	11,0 mA	3,3 mA	Ø15,3 x 24,25 mm	11,2 g
3NH160BJP3	3,6 V	160 mAh	16,0 mA	4,8 mA	23,3 x 15,0 x 16,80 mm	16,3 g
2NH230BJP2	2,4 V	230 mAh	23,0 mA	7,0 mA	Ø25,1 x 13,25 mm	17,5 g
2NH230BJP3	2,4 V	230 mAh	23,0 mA	7,0 mA	Ø25,1 x 13,25 mm	17,5 g
3NH230BJP3	3,6 V	230 mAh	23,0 mA	7,0 mA	Ø25,1 x 19,75 mm	26,2 g
3NH280BJP3	3,6 V	280 mAh	28,0 mA	8,4 mA	Ø25,1 x 23,05 mm	33,4 g
2NH330BJP2	2,4 V	330 mAh	33,0 mA	9,9 mA	Ø25,1 x 17,65 mm	23,5 g
2NH330BJP3	2,4 V	330 mAh	33,0 mA	9,9 mA	Ø25,1 x 17,65 mm	23,5 g
3NH330BJP3	3,6 V	330 mAh	33,0 mA	9,9 mA	Ø25,1 x 26,35 mm	35,2 g

Baterías prismáticas

Prismatic batteries

TAMAÑO SIZE	REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA ESTÁNDAR STANDARD DISCHARGE	DESCARGA CORRIENTE MAX. CONTINUA MAX. DISCHARGE CURRENT CONTINOUS	DIMENSIONES DIMENSIONS	PESO WEIGHT	TECNOLOGÍA TECHNOLOGY
2/3F6	NH400F6JF	1,2 V	400 mAh	40,0 mA	11,0 A	6,0 x 17,0 x 30,0 mm	11,3 g	Ni-MH
3/4F6	NH500F6SJF	1,2 V	500 mAh	50,0 mA	9,0 A	6,3 x 16,0 x 34,0 mm	12,1 g	Ni-MH
F6	NH800F6JF	1,2 V	800 mAh	80,0 mA	9,0 A	6,0 x 17,0 x 48,0 mm	16,8 g	Ni-MH
7/5F6	NH1200F6JF	1,2 V	1200 mAh	120,0 mA	16,0 A	6,0 x 17,0 x 67,0 mm	23,5 g	Ni-MH

Packs de baterías de Níquel

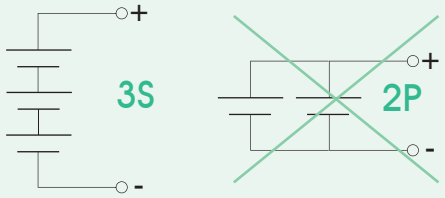
Nickel battery packs

Las baterías de Níquel tienen un voltaje de 1,2V. Para adaptar el voltaje de la batería al requerido por el equipo electrónico es necesario asociar baterías en serie.
Cuando se asocian baterías en serie (Fig. 3S) el voltaje final del pack es la suma de los voltajes individuales.

- Es posible hacer asociaciones de baterías de Níquel con una serie de precauciones que garantice el correcto funcionamiento del pack.
- Las baterías de un pack deben ser lo más parecidas posible. Misma impedancia, capacidad y voltaje en abierto. Es lo que se llaman baterías emparejadas ("matched").
- No es posible asociar baterías de Níquel en paralelo porque se produce inestabilidad del pack a medio plazo e incremento de la autodescarga que ya de por sí es alta en las baterías de Níquel.
- La probabilidad de fallo en un pack crece en función del número de células. Si una determinada batería tiene una tasa de fallo del 0,03%, un pack con 20 células tendrá una tasa de fallo de 0,6% (20 x 0,03%) ya que el fallo de una sola célula provoca el fallo general del pack. Si un pack tiene 60 baterías, la tasa de fallo asciende a 1,8%
- En la sección de utilidades se pueden ver ejemplos de diferentes formas de asociación de las baterías de Níquel.

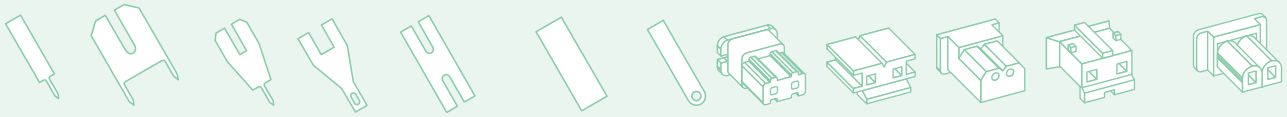
Nickel secondary batteries have a voltage of 1.2V. To adjust the battery voltage to the voltage required by the electronic devices is necessary to associate the batteries in series.
When batteries are associated in series (Fig. 3S) the final voltage of the pack is the sum of the individual voltages.

- It is possible to make nickel battery association with several cautions to ensure proper functioning of the pack.
- Batteries used in a pack should be as similar as possible. Same impedance, same capacity and same open circuit voltage. This is called matched batteries.
- It is not possible to associate nickel batteries in parallel because medium term instabilities will be created in the pack and self-discharge will be increased , which is already high.
- The probability of failure in a pack increases depending on the number of cells. If a battery has a failure rate of 0.03%, a pack with 20 cells have a failure rate of 0.6% (20 x 0.03%) since the failure of a single cell causes the general failure of the pack. If a pack has 60 batteries, the failure rate is 1.8%.
- In the Utilities section can be seen examples of different shapes of association of the nickel batteries.



Packs de baterías para teléfonos inalámbricos
Wireless telephone battery packs

Terminales y conectores / Terminals and connectors



BP417 BP1015D BP614 P08X28F48 P08X28F64 P06X34H P06X38H P07X38H P08X28H P04X20 P05X25 P06X30 P07X38 P04X20A P05X25A P06X30A WC1 WC2 WC3 WC11 WCU

Baterías para linternas profesionales
Batteries for professional flashligth

Baterías para lámparas de emergencia
Batteries por emergency lamps

Tapas de fijación (disponibles en varios tamaños)
Fixing caps (Available in different sizes)

Batería para sistemas de tele asistencia
Batteries for elder assistance

Baterías de radiocontrol
Radiocontrol batteries

BATERÍAS DE PLOMO-ÁCIDO
LEAD ACID BATTERIES

Sillas de ruedas
Wheelchairs

Sistema de alimentación ininterrumpida (SAI)
Uninterruptible power supply (UPS)

Carrito de golf
Golf cart

Panel solar
Solar system

1.- Descripción

La batería de Plomo - Ácido es un tipo de acumulador de energía eléctrica que consta de un habitáculo prismático (hermético ó abierto) o cilíndrico en cuyo interior está colocado un número determinado de placas de plomo, alternadas con otras de bióxido de plomo junto con rejillas separadoras. Bañando todo su conjunto, se encuentra un fluido, llamado electrolito, consistente en ácido sulfúrico diluido en agua destilada. Cada pareja de esas placas (comúnmente conocidas como "vaso" o "celda") genera un voltaje nominal de 2 voltios. Por tanto, cada batería estará formada por un número determinado de éstas, para alcanzar un voltaje nominal de 2, 4, 6, 8 o 12V.

Dependiendo de la forma y tamaño de las placas anteriormente citadas, la batería alcanzará una determinada capacidad de almacenamiento eléctrico, cuya unidad fundamental de medida es el Amperio-Hora (Ah).

Según sea el diseño interno, cada batería estará más o menos capacitada para poder suministrar cuanta energía eléctrica le demande la carga. Es decir, estará optimizada para poder ser utilizada en una aplicación estacionaria, cíclica, arranque, tracción o energía solar.

2.- Tipos de baterías según su tecnología

Ya se ha indicado que el conjunto de placas de plomo-rejillas está bañado por un fluido llamado electrolito. Dependiendo de la presentación de éste, podemos encontrar 2 tipos o tecnologías de baterías:

• Tecnología AGM

En este tipo de batería, el electrolito está absorbido por capilaridad por un material poroso de fibra de vidrio llamado AGM (Absorbed Glass Material), el cual favorece el contacto entre el electrolito con cada placa. Además, entre otras acciones, impide la acumulación de depósitos en la parte baja de la batería.

• Tecnología GEL

En este tipo de batería, el electrolito está fijado en forma de gel, en una estructura tixotrópica. Con ello se consigue aumentar las prestaciones de la batería, sobre todo en lo relativo a la autodescarga, recuperación ante descargas profundas, vida útil, altas corrientes de descarga, etc.

Ambos tipos de baterías, AGM y GEL, como elemento fundamental de seguridad, están dotadas de unas válvulas de seguridad, que regulan y controlan los gases internos provenientes de las reacciones químicas que se producen en el interior de la batería, durante su proceso de carga y de descarga. En el caso de una generación excesiva de los mismos, estos son expulsados al exterior, sin peligro alguno para el usuario. Es lo que se conoce como VRLA (Valve Regulated Lead Acid)

3.- Aspectos muy importantes a tener en cuenta para elegir el modelo más adecuado

• Uso y aplicación

Es imprescindible conocer claramente el uso y aplicación que se va a realizar con la batería elegida. Dependiendo de la tecnología de fabricación y tipología de uso, se podrá seleccionar el modelo más óptimo.

Uno de los factores más fundamentales, entre otros, es averiguar si el uso de la batería va a ser estacionario o cíclico:

- Uso estacionario: es aquel en el que la batería va a ser utilizada de forma esporádica, y no repetitiva, debido a una situación anómala en el sistema. Ejemplos: sistemas de seguridad y

1.- Description

Lead-Acid batteries are a type of electrical energy storage cells which are formed by a prismatic case (sealed or open) or cylindrical which contains several lead plates alternated with others plates of lead oxide together with spacer grids. These plates are separated for an element soaked in sulphuric acid diluted in distilled water, called electrolyte. Each pair of these plates (commonly known as "cell") generates a rated voltage of 2 volts. Therefore, each battery will consist of a certain number of cells, to reach a total rated voltage of 2, 4, 6, 8 or 12V.

Depending on the shape and size of the plates, the battery will reach a certain electrical storage capacity, which its fundamental unit of measure is the ampere-hour (Ah).

According to the internal design, each model of battery is more or less able to provide electrical energy depending on the demand of the load. Therefore, it is optimized to be used in a stationary, cyclical, starting, traction or solar energy application.

2.- Types of batteries based on technology

As stated before, the set of lead plates and gid is soaked in a fluid called electrolyte. Depending on the format of this fluid, there are two types of lead-acid battery technologies.

• AGM technology

In this type of battery, the electrolyte is absorbed by capillarity through a porous fiberglass material called AGM (Absorbed Glass Material) which contributes to the contact between each electrolyte plate. This material, among other features, prevents the accumulation of deposits at the bottom of the battery.

• Gel technology

In this type of battery, the electrolyte is fixed in gel form, in a thixotropic structure. This increases the performance of the battery, especially with regard to self-discharge, deep discharge recovery, useful life, high discharge currents, etc.

Both types of batteries, as an essential safety element, are equipped with safety valves, which regulate and control the internal gases of the chemical reactions occurring inside the battery during charging and discharging. In the case of excessive generation of gases, they are expelled to the outside without danger to the user. It is known as VRLA (Valve Regulated Lead Acid).

3- Aspects to consider in choosing the right model

• Use and application

It is clearly imperative to know the use and application of the chosen battery. Depending on the manufacturing technology and types of use, the user can select the optimal model.

One of the most fundamental factors, among others, is whether the use of the battery will be stationary or cyclic:

Stationary use: when the battery will be used sporadically due to an anomaly in the system. Examples: security systems and alarm devices, uninterruptible power supply (UPS), etc.

Cyclical use: when the battery will be continuously used in cycles of charging - discharging. Examples: electric wheelchairs, golf carts, motors in general, etc.

Within the cyclic use, it must be considered the required application: general cyclic, solar, starter, traction, etc.

Also, it must be taken into account the number of cycles that the battery must withstand and the depth of discharge (DOD), which is usually between 20% and 80%.

alarmas, Sistemas de Alimentación Ininterrumpida (SAI), etc.

- Uso cíclico: es aquel en el que se va a usar la batería de forma seguida, en procesos continuos de uso-parada. Ejemplos: sillas de ruedas eléctricas, carros de golf, motores en general, etc.

Dentro del uso cíclico hay que tener conocimiento de la aplicación solicitada: cíclica en general, solar, arranque, tracción, etc.

También habrá que tener en cuenta el nº de ciclos que debe de soportar el modelo de batería y la profundidad de descarga (DOD-Deep of Discharge), que suele ser entre el 20% y el 80%.

• Capacidad nominal (Ah)

Este dato será el indicado por el cliente o el calculado para una determinada autonomía del sistema que va a alimentar la batería. Su valor siempre está relacionado con unas condiciones definidas por el fabricante, como son la velocidad de descarga (C10, C20, C100, etc.), temperatura de funcionamiento (20ºC, 25ºC, etc.) y tensión final por celda (1,65VpC, 1,75VpC, etc). Por tanto, un mismo modelo de batería de plomo tiene varios valores de capacidad nominal, dependiendo de la variación de las condiciones citadas.

• Tipo de conexión y dimensiones

Hay que tener la certeza de que el modelo de batería elegido tiene un tipo de conexión compatible con el requerido por la instalación. Las conexiones más habituales son de tipo Faston (4,8 y 6,4mm), chapa con agujero pasante, rosca (M5, M6 y M8) embutida en la propia carcasa, bulón (cilíndrico ó cónico), etc. En cuanto a las dimensiones, hay que comprobar que son las requeridas, teniendo en cuenta las lógicas tolerancias indicadas por el fabricante.

• Consejos generales de uso y mantenimiento

Además de los aspectos anteriores a tener en cuenta para elegir el modelo más adecuado, hay que saber que la temperatura del lugar donde se va a ubicar la batería tiene una importancia primordial. De forma resumida, hay que saber que los datos técnicos aportados por los fabricantes, siempre están referidos a una temperatura ambiente de 20-25ºC.

Cualquier variación positiva o negativa de los valores indicados va a implicar una menor capacidad, un acortamiento del periodo de vida, un posible deterioro de la batería, etc. Lo anteriormente indicado, es válido tanto para el proceso de carga y como de descarga.

En cuanto al mantenimiento; siempre teniendo en cuenta la temperatura de almacenamiento, habrá que hacer un chequeo de capacidad cada 6-9 meses, dependiendo de tipo de batería. También habrá que tener presente la auto descarga que tienen este tipo de batería (2-5% mensual, según modelo y tipo).

• Reciclado de baterías de Plomo-Ácido (Lead Acid)

UKAI, S.A. pertenece a un Sistema Integado de Gestión (SIG) que gestiona la retirada y reciclaje de este tipo de baterías. Este aspecto es fundamental e imprescindible a la hora de adquirir y usar este tipo de material.

• Rated Capacity (Ah)

This datum will be provided by the customer or calculated to reach a level of autonomy of the system powered by the battery. This datum is always related to the conditions determined by the manufacturer, such as the discharge rate (C10, C20, C100, etc.), operating temperature (20°C, 25°C, etc.) and final voltage per cell (1.65VpC, 1.75VpC, etc). Therefore, the same model of lead-acid battery has several values of rated capacity, depending on the variation of these conditions.

• Connection type and dimensions

User must be sure that the battery model chosen has a connection type that is compatible with the installation. The most common connectors are Faston type (4.8 to 6.4mm), bolt and nut, case embedded thread (M5, M6 and M8), bolt (cylindrical or conical), etc. Regarding size, user needs to check required dimensions, taking into account tolerances specified by manufacturer.

• Tips for use and maintenance

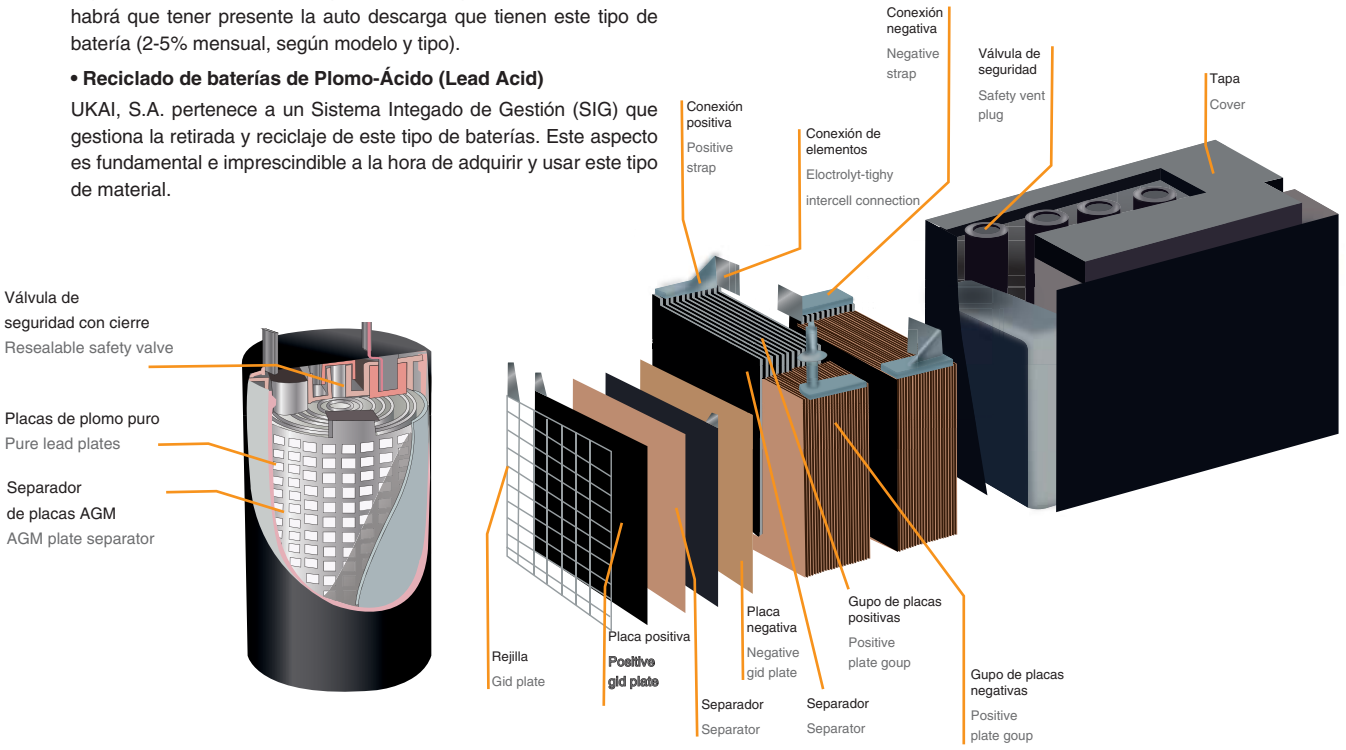
Besides the above, another important parameter to consider is the temperature of the place where the battery will be located. Briefly, the user should know that the technical data supplied by manufacturers, is always refered to an ambient temperature of 20-25°C.

Any positive or negative variation of the indicated values will lead to a lower capacity, a shortening of lifespan, a possible deterioration of the battery, etc. The above is valid for both charging and discharging process.

Regarding to maintenance, taking into account temperature, user will have to check the capacity every six months (minimum). Also it should be kept in mind the self-discharge of this type of batteries (2-5% per month, depending on model and type).

• Recycling of lead-acid batteries

UKAI, S.A. is member of an Integated Management System for recycling batteries, that manages the removal and recycling of these batteries. This issue is essential when acquiring and using this type of material.



Baterías Plomo-Ácido tipo AGM

Lead-Acid batteries AGM type

Baterías de prestaciones estándar

Este tipo de baterías AGM son idóneas para un uso principalmente estacionario estándar y poseen un diseño-vida de 5 a 8 años.

Su voltage nominal es de 6 o 12 voltios y su rango de capacidad va desde 0,8 hasta 200 Ah.

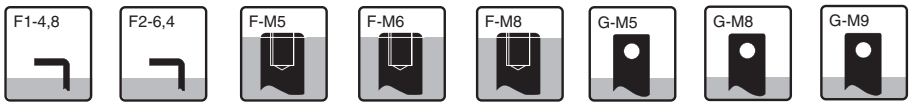
Standard performance batteries

This type of AGM batteries is ideal for a standard stationary use and they have a design of 5-8 years life.

Its rated voltage is 6 or 12 volt and its range of capacity goes from 0.8 to 200 Ah.

VOLTAJE NOMINAL	CAPACIDAD (Ah-C20)	REFERENCIA	MARCA	LARGO (l)	ANCHO (w)	ALTO (h)	ALTURA MAX.	PESO (w)	EMBALAJE	CONEXIÓN
RATED VOLTAGE	CAPACITY (Ah-C20)	PART NUMBER	BRAND	LENGTH (l)	WIDTH (w)	HEIGHT (h)	HEIGHT MAX (h max.)	WEIGHT (w)	PACKAGING	CONNECTION
12,0 V	0,8 Ah	UL0.8-12	Ultracell	96,0 mm	25,0 mm	62,0 mm	62,0 mm	0,30 kg	30 pcs	JST VH
		LV0.8-12	Liven	96,0 mm	25,0 mm	62,0 mm	62,0 mm	0,36 kg	20 pcs	JST VH
12,0 V	1,3 Ah	UL1.3-12	Ultracell	97,0 mm	43,0 mm	52,0 mm	58,0 mm	0,55 kg	10 pcs	F1-4,8
		LV1.3-12	Liven	97,0 mm	45,0 mm	52,0 mm	58,0 mm	0,57 kg	20 pcs	F1-4,8
12,0 V	2,3/2,4 Ah	UL2.4-12	Ultracell	178,0 mm	35,0 mm	60,0 mm	66,0 mm	0,89 kg	10 pcs	F1-4,8
12,0 V	2,3 Ah	LV2.3-12	Liven	179,0 mm	35,0 mm	61,0 mm	66,0 mm	0,92 kg	10 pcs	F1-4,8
12,0 V	2,9 Ah	UL2.9-12	Ultracell	78,0 mm	55,0 mm	97,0 mm	100,0 mm	1,10 kg	10 pcs	F1-4,8
12,0 V	2,8 Ah	LV2.9-12	Liven	80,0 mm	55,0 mm	99,0 mm	103,0 mm	1,10 kg	10 pcs	F1-4,8
12,0 V	3,4 Ah	UL3.4-12	Ultracell	134,0 mm	67,0 mm	61,0 mm	67,0 mm	1,30 kg	10 pcs	F1-4,8
12,0 V	3,2 Ah	LV3,3-12	Liven	134,0 mm	67,0 mm	61,0 mm	67,0 mm	1,30 kg	10 pcs	F1-4,8
12,0 V	5,0 Ah	UL5-12	Ultracell	90,0 mm	70,0 mm	101,0 mm	107,0 mm	1,68 kg	10 pcs	F1-4,8
		LV5-12	Liven	90,0 mm	70,0 mm	101,0 mm	105,0 mm	1,60 kg	10 pcs	F2-6,4
12,0 V	7,0 Ah	UL7.0-12	Ultracell	151,0 mm	65,0 mm	94,0 mm	99,0 mm	2,05 kg	8 pcs	F1-4,8
12,0 V	7,2 Ah	UL7.2-12	Ultracell	151,0 mm	65,0 mm	95,0 mm	101,0 mm	2,20 kg	8 pcs	F1-4,8
		LV7.2-12	Liven	151,0 mm	65,0 mm	95,0 mm	101,0 mm	2,25 kg	5 pcs	F2-6,4
12,0 V	7,5 Ah	UL7,5-12	Ultracell	151,0 mm	65,0 mm	94,0 mm	99,0 mm	2,30 kg	8 pcs	F1-4,8
12,0 V	9,0 Ah	UL9-12	Ultracell	151,0 mm	65,0 mm	95,0 mm	101,0 mm	2,60 kg	8 pcs	F2-6,4
12,0 V	9,0 Ah	LV9-12	Liven	151,0 mm	65,0 mm	94,0 mm	100,0 mm	2,65 kg	5 pcs	F2-6,4
12,0 V	12,0 Ah	UL12-12	Ultracell	151,0 mm	98,0 mm	95,0 mm	101,0 mm	3,70 kg	6 pcs	F1-4,8
		LV12-12	Liven	151,0 mm	98,0 mm	95,0 mm	101,0 mm	3,75 kg	4 pcs	F2-6,4
12,0 V	18,0 Ah	UL18-12	Ultracell	181,0 mm	77,0 mm	167,0 mm	167,0 mm	5,70 kg	2 pcs	G-M5
12,0 V	17,0 Ah	LV17-12	Liven	181,0 mm	77,0 mm	167,0 mm	167,0 mm	5,30 kg	4 pcs	G-M5
12,0 V	26,0 Ah	UL26-12	Ultracell	166,0 mm	175,0 mm	125,0 mm	125,0 mm	8,00 kg	1 pcs	G-M6
		LV26-12	Liven	166,0 mm	175,0 mm	125,0 mm	125,0 mm	8,50 kg	2 pcs	F-M6
12,0 V	35,0 Ah	UL35-12	Ultracell	195,0 mm	130,0 mm	164,0 mm	178,0 mm	11,20 kg	1 pcs	G-M8
12,0 V	40,0 Ah	UL40-12	Ultracell	197,0 mm	165,0 mm	170,0 mm	170,0 mm	13,00 kg	1 pcs	G-M8
12,0 V	45,0 Ah	UL45-12	Ultracell	197,0 mm	165,0 mm	170,0 mm	170,0 mm	14,20 kg	1 pcs	F-M6

Terminales / Connections

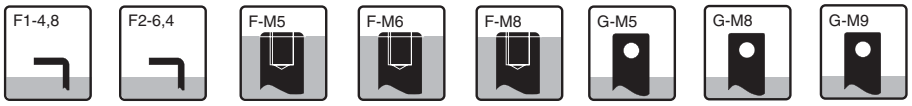


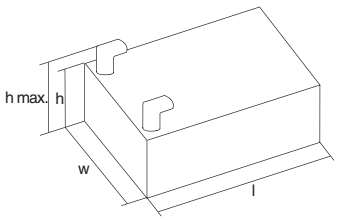
Baterías de prestaciones estándar

Standard performance batteries

VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C20) CAPACITY (Ah-C20)	REFERENCIA PART NUMBER	MARCA BRAND	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	ALTURA MAX. (h max.) HEIGHT MAX (h max.)	PESO WEIGHT	EMBALAJE PACKAGING	CONEXIÓN CONNECTION
12,0 V	55,0 Ah	UL55-12	Ultracell	229,0 mm	138,0 mm	205,0 mm	226,0 mm	17,00 kg	1 pcs	G-M8
12,0 V	60,0 Ah	UL60-12	Ultracell	259,0 mm	168,0 mm	208,0 mm	214,0 mm	18,50 kg	1 pcs	G-M9
12,0 V	70,0 Ah	UL70-12	Ultracell	348,0 mm	167,0 mm	178,0 mm	178,0 mm	21,60 kg	1 pcs	F-M6
12,0 V	80,0 Ah	UL80-12	Ultracel	259,0 mm	168,0 mm	208,0 mm	214,0 mm	24,00 kg	1 pcs	F-M6
12,0 V	90,0 Ah	UL90-12	Ultracell	330,0 mm	173,0 mm	212,0 mm	220,0 mm	28,00 kg	1 pcs	F-M8
12,0 V	100,0 Ah	UL100-12	Ultracell	330,0 mm	173,0 mm	212,0 mm	220,0 mm	30,40 kg	1 pcs	F-M8
12,0 V	120,0 Ah	UL120-12	Ultracell	405,0 mm	175,0 mm	235,0 mm	235,0 mm	38,00 kg	1 pcs	G-M8
12,0 V	150,0 Ah	UL150-12	Ultracell	485,0 mm	170,0 mm	240,0 mm	240,0 mm	43,50 kg	1 pcs	F-M8
12,0 V	200,0 Ah	UL200-12	Ultracell	522,0 mm	240,0 mm	218,0 mm	224,0 mm	61,00 kg	1 pcs	F-M8
12,0 V	200,0 Ah	UL250-12	Ultracell	522,0 mm	268,0 mm	220,0 mm	226,0 mm	73,00 kg	1 pcs	F-M8
6,0 V	1,3 Ah	UL1.3-6	Ultracell	97,0 mm	24,0 mm	52,0 mm	58,0 mm	2,45 kg	30 pcs	F1-4,8
		LV1.3-6	Liven	97,0 mm	24,0 mm	52,0 mm	58,0 mm	2,29 kg	40 pcs	F1-4,8
6,0 V	2,8 Ah	UL2.8-6	Ultracell	66,0 mm	33,0 mm	97,0 mm	104,0 mm	0,57 kg	20 pcs	F1-4,8
		LV2.8-6	Liven	66,0 mm	33,0 mm	97,0 mm	104,0 mm	0,55 kg	20 pcs	F1-4,8
6,0 V	3,2 Ah	UL3.2-6	Ultracell	134,0 mm	34,0 mm	60,0 mm	66,0 mm	0,65 kg	20 pcs	F1-4,8
		LV3.2-6	Liven	134,0 mm	35,0 mm	60,0 mm	67,0 mm	0,63 kg	40 pcs	F1-4,8
6,0 V	4,5 Ah	UL4.5-6	Ultracell	70,0 mm	47,0 mm	101,0 mm	106,0 mm	0,85 kg	20 pcs	F1-4,8
		LV4.5-6	Liven	70,0 mm	47,0 mm	101,0 mm	106,0 mm	0,74 kg	20 pcs	F1-4,8
6,0 V	7,0 Ah	UL7-6	Ultracell	151,0 mm	35,0 mm	94,0 mm	100,0 mm	1,10 kg	20 pcs	F1-4,8
		LV7-6	Liven	151,0 mm	35,0 mm	94,0 mm	100,0 mm	1,08 kg	10 pcs	F1-4,8
6,0 V	12,0 Ah	UL12-6	Ultracell	151,0 mm	50,0 mm	94,0 mm	100,0 mm	1,75 kg	10 pcs	F1-4,8
		LV12-6	Liven	151,0 mm	50,0 mm	94,0 mm	100,0 mm	1,83 kg	10 pcs	F1-4,8

Terminales / Connections





Baterías especiales para aplicación de Vehículo Eléctrico

Special batteries for Electric Vehicles

Este tipo de baterías Plomo-Acido está diseñado específicamente para aplicación de uso cíclico extremo, tal como Vehículos Electricos, sillas de minusválidos, carrito de golf, herramientas y motores eléctricos en general, etc. Estas baterías poseen un número elevado de ciclos de uso (400 ciclos al 100% DOD, 800 ciclos al 50% DOD y 1800 cilcos al 30% DOD).

La serie EVH, comparada con la EVX posee más capacidad para un mismo tamaño.

Son de un voltage de 12V y su rango de capacidad está entre 7,2 y 75 Ah.

This kind of Lead-Acid batteries are specifically designed for extreme cyclic applications, like Electric Vehicles, wheelchairs, golf carts or electric tools or motors in general, etc.

These batteries have high life cycles (400 cycles at 100% DOD, 800 cycles at 50% DOD and 1800 cycles at 30% DOD).

The EVH series, compared with EVX series, have more capacity at the same size.

They have 12V and its capacity range is between 7,2 and 75Ah.

Serie EVX

EVX Serie

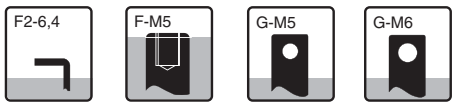
VOLTAJE NOMINAL / RATED VOLTAGE	CAPACIDAD (Ah-C20) / CAPACITY (Ah-C20)	REFERENCIA / PART NUMBER	LARGO (l) / LENGTH (l)	ANCHO (w) / WIDTH (w)	ALTO (h) / HEIGHT (h)	PESO (w) / WEIGHT (w)	EMBALAJE / PACKAGING	CONEXIÓN / CONNECTION
12,0 V	7,2 Ah	EVX1272	151,0 mm	65,0 mm	100,0 mm	2,60 kg	10 pcs	F2-6,4
12,0 V	12,0 Ah	EVX12120	151,0 mm	98,0 mm	100,0 mm	4,20 kg	6 pcs	F2-6,4
12,0 V	20,0 Ah	EVX12200	181,0 mm	76,2 mm	167,0 mm	6,70 kg	4 pcs	F-M5
12,0 V	26,0 Ah	EVX12260	97,0 mm	175,0 mm	125,0 mm	9,46 kg	2 pcs	G-M5
12,0 V	30,0 Ah	EVX12300	179,0 mm	125,0 mm	175,0 mm	10,40 kg	2 pcs	F-M5
12,0 V	34,0 Ah	EVX12340	178,0 mm	130,0 mm	178,3 mm	11,74 kg	1 pcs	G-M6
12,0 V	40,0 Ah	EVX12400	178,0 mm	165,0 mm	170,0 mm	14,60 kg	1 pcs	G-M6
12,0 V	52,0 Ah	EVX12520	78,0 mm	138,4 mm	219,3 mm	17,90 kg	1 pcs	G-M6
12,0 V	65,0 Ah	EVX12650	349,4 mm	166,0 mm	174,0 mm	22,20 kg	1 pcs	G-M6
12,0 V	75,0 Ah	EVX12750	274,0 mm	167,4 mm	233,2 mm	26,80 kg	1 pcs	G-M6

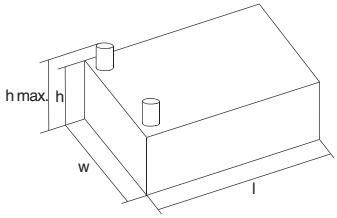
Serie EVH

EVH Serie

VOLTAJE NOMINAL / RATED VOLTAGE	CAPACIDAD (Ah-C20) / CAPACITY (Ah-C20)	REFERENCIA / PART NUMBER	LARGO (l) / LENGTH (l)	ANCHO (w) / WIDTH (w)	ALTO (h) / HEIGHT (h)	PESO (w) / WEIGHT (w)	EMBALAJE / PACKAGING	CONEXIÓN / CONNECTION
12,0 V	15,0 Ah	EVH12150	151,0 mm	98,0 mm	100,0 mm	4,5 kg	6	F2-6,4
12,0 V	24,0 Ah	EVH12240	181,0 mm	76,2 mm	167,0 mm	7,0 kg	4	F-M5
12,0 V	39,0 Ah	EVH12390	195,0 mm	30,0 mm	178,3 mm	11,5 kg	1	G-M6

Terminales / Connections





Baterías de altas prestaciones

Estas baterías de plomo-ácido tipo AGM de altas prestaciones tienen un robusto diseño para una amplia gama de aplicaciones.

Su diseño-vida varía en función de la serie, entre 5 y 12 años.

High performance batteries

This type of high-performance AGM lead-acid batteries has a robust design for a wide range of applications.

Its life varies depending on the series, between 5 and 12 years.

Marathon - Series L/XL

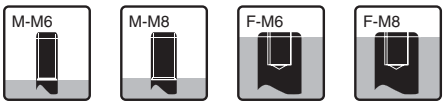
Esta serie está diseñada para tener una larga durabilidad en aplicaciones de telecomunicaciones, útiles electrónicos, etc. Está capacitada para dar una optima respuesta en media y larga duración de descarga. Su voltaje nominal es de 2, 6 o 12 voltios y su rango de capacidad va desde 14 hasta 618Ah. con un diseño-vida de 12 años.

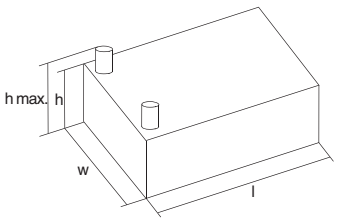
Marathon - L/XL Series

This series is designed to have a long life in telecommunication applications, electronic devices, etc. It is able to provide an optimal performance in discharges of medium and long time. Its rated voltage is 2, 6 or 12 volts and its capacity range is from 14 up to 618Ah with a design of 12 years life.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C20) CAPACITY (Ah-C20)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	ALTURA MAX. (h max.) HEIGHT MAX (h max.)	PESO WEIGHT	CONEXIÓN CONNECTION
L12V15 V0	12,0 V	14,4 Ah	181,0 mm	76,0 mm	167,0 mm	167,0 mm	6,5 kg	M-M6
L12V24 V0	12,0 V	24,0 Ah	168,0 mm	127,0 mm	174,0 mm	174,0 mm	9,5 kg	M-M6
L12V32 V0	12,0 V	33,0 Ah	198,0 mm	168,0 mm	175,0 mm	175,0 mm	13,5 kg	M-M6
XL12V50 V0	12,0 V	55,4 Ah	220,0 mm	172,0 mm	219,0 mm	235,0 mm	19,5 kg	F-M6
XL12V70 V0	12,0 V	71,8 Ah	262,0 mm	172,0 mm	223,0 mm	239,0 mm	24,6 kg	F-M6
XL12V85 V0	12,0 V	90,8 Ah	309,0 mm	172,0 mm	223,0 mm	239,0 mm	29,3 kg	F-M6
L6V110 V0	6,0 V	118,0 Ah	272,0 mm	166,0 mm	190,0 mm	190,0 mm	23,0 kg	M-M8
XL6V180 V0	6,0 V	187,0 Ah	309,0 mm	172,0 mm	223,0 mm	241,0 mm	30,0 kg	F-M6
L2V220 V0	2,0 V	236,0 Ah	208,0 mm	135,0 mm	282,0 mm	282,0 mm	16,0 kg	F-M8
L2V270 V0	2,0 V	289,0 Ah	208,0 mm	135,0 mm	282,0 mm	282,0 mm	18,3 kg	F-M8
L2V320 V0	2,0 V	346,0 Ah	208,0 mm	201,0 mm	282,0 mm	282,0 mm	24,2 kg	2x(F-M8)
L2V375 V0	2,0 V	404,0 Ah	208,0 mm	201,0 mm	282,0 mm	282,0 mm	26,5 kg	2x(F-M8)
L2V425 V0	2,0 V	456,0 Ah	208,0 mm	201,0 mm	282,0 mm	282,0 mm	28,8 kg	2x(F-M8)
L2V470 V0	2,0 V	507,0 Ah	208,0 mm	270,0 mm	282,0 mm	282,0 mm	32,6 kg	2x(F-M8)
L2V520 V0	2,0 V	559,0 Ah	208,0 mm	270,0 mm	282,0 mm	282,0 mm	35,0 kg	2x(F-M8)
L2V575 V0	2,0 V	618,0 Ah	208,0 mm	270,0 mm	282,0 mm	282,0 mm	37,3 kg	2x(F-M8)

Terminales / Connections





Baterías Plomo-Ácido tipo AGM

Lead-Acid batteries AGM type

Baterías de altas prestaciones

High performance batteries

Marathon FT - Front terminal

La serie Marathon FT tiene idénticas características que la serie anterior. Esta se diferencia en que, al llevar las conexiones frontales, permite su ubicación modular y en racks.

Su voltaje nominal es de 6 o 12 voltios y su rango de capacidad va desde 38 hasta 210Ah, con un diseño-vida de 12 años.

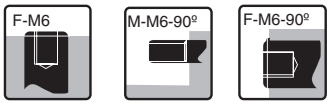
Marathon FT - Front terminal

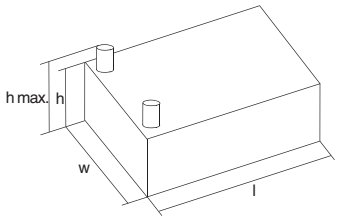
Marathon FT series has the same characteristics as the previous series. This series has front connectors, which allows modular location and association in racks.

Its rated voltage is 6 or 12 volts and its capacity range is from 38 up to 210Ah with a design of 12 years life.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C20) CAPACITY (Ah-C20)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	PESO WEIGHT	CONEXIÓN CONNECTION
M12V35FT	12,0 V	38Ah	280,0 mm	107,0 mm	189,0 mm	14,0 kg	M-M6-90º
M12V50FT	12,0 V	48Ah	280,0 mm	107,0 mm	231,0 mm	18,0 kg	M-M6-90º
M12V60FT	12,0 V	62 Ah	280,0 mm	107,0 mm	263,0 mm	23,0 kg	M-M6-90º
M12V90FT	12,0 V	94 Ah	395,0 mm	105,0 mm	270,0 mm	31,0 kg	F-M6-90º
M12V105FT	12,0 V	106 Ah	511,0 mm	110,0 mm	238,0 mm	35,8 kg	F-M6-90º
M12V125FT	12,0 V	128 Ah	559,0 mm	124,0 mm	283,0 mm	47,6 kg	F-M6-90º
M12V155FT	12,0 V	158 Ah	559,0 mm	124,0 mm	283,0 mm	53,8 kg	F-M6-90º
M6V200FT	6,0 V	210 Ah	361,0 mm	132,0 mm	250,0 mm	34,0 kg	F-M6

Terminales / Connections





Baterías Plomo-Ácido tipo AGM

Lead-Acid batteries AGM type

Baterías de altas prestaciones

High performance batteries

Powerfit - Serie S100

La serie Powerfit S100 está diseñada para uso estacionario, como pueden ser SAI`s, sistemas de alarma y seguridad, alumbrado de emergencia, etc.

Su voltaje nominal es de 6 ó 12V y su rango de capacidad va desde 1.2 hasta 38Ah. Tiene un diseño-vida de 3-5 años.

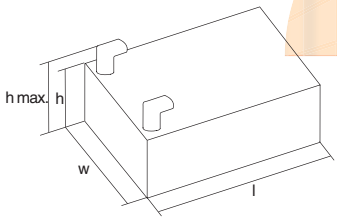
Powerfit - S100 Series

Powerfit S100 series is designed for stationary use, like UPS, alarm and safety system, emergency lights, etc.

Its nominal voltage is 6V or 12V and its capacity can be from 1.2Ah to 38Ah. It is designed for 3-5 years.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C20) CAPACITY (Ah-C20)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	PESO (w) WEIGHT (w)	CONEXIÓN CONNECTION
S112/1,2 S	12,0 V	1,2 Ah	97 mm	43,0 mm	58 mm	0,57 kg	F1-4,8
S112/1,9 S	12,0 V	1,9 Ah	178 mm	35,0 mm	65 mm	0,87 kg	F1-4,8
S112/4,5 S	12,0 V	4,5 Ah	90,0 mm	70,0 mm	107,0 mm	1,48 kg	F1-4,8
S112/7,2 S	12,0 V	7,2 Ah	151 mm	65,0 mm	99,0 mm	2,35 kg	F1-4,8
S112/7,2 SR	12,0 V	7,2 Ah	151 mm	65,0 mm	99,0 mm	2,35 kg	F1-4,8
S112/9 SR	12,0 V	9,0 Ah	151,0 mm	65,0 mm	99 mm	2,45 kg	F1-4,8
S112/12 S	12,0 V	12,0 Ah	151 mm	98,0 mm	101 mm	3,50 kg	F1-4,8
S112/12 SR	12,0 V	12,0 Ah	151 mm	98,0 mm	101 mm	3,50 kg	F1-4,8
S112/18 G6	12,0 V	18,0 Ah	182 mm	77,0 mm	167 mm	5,40 kg	G-M5
S112/26 G6	12,0 V	26,0 Ah	166 mm	175 mm	125 mm	8,00 kg	G-M5
S112/38 F6	12,0 V	38,0 Ah	197 mm	165 mm	170 mm	12,20 kg	G-M5
S106/1,2 S	6,0 V	1,2 Ah	97,0 mm	24,0 mm	57,5 mm	0,29 kg	F1-4,8
S106/4,5 S	6,0 V	4,5 Ah	70,0 mm	47,0 mm	106 mm	0,81 kg	F1-4,8
S106/12 SR	6,0 V	12,0 Ah	151 mm	51,0 mm	100 mm	1,80 kg	F1-4,8

Terminales / Connections



Sprinter P / XP

Este tipo de baterías son especiales para SAIs, tienen una alta densidad de energía con un diseño-vida de 10 años.

Su voltaje nominal es de 6 y 12 voltios y su rango de capacidad va desde 24 hasta 195Ah.

Disponemos de baterías de sustitución para modelos Sprinter.

Consultar modelos y disponibilidad.

Sprinter P / XP

This type of batteries are specials for UPS's, they have a high energy density with a design-life of 10 years.

Its rated voltage is 6 and 12 volt and its range of capacity goes from 24 to 195Ah.

We have replacement batteries for Sprinter models.

Check models and availability.

Baterías cilíndricas

Cylindrical batteries

Casi la totalidad de modelos de baterías de plomo-acido tipo AGM existentes en el mercado, son de forma prismática. Pero existe un tipo de baterías, llamadas CYCLON, que son de forma cilíndrica.

Por su estructura, construcción interna y materiales utilizados, este tipo de baterías poseen unas características, por las cuales, su rendimiento y eficacia es superior a la mayoría del resto de modelos de baterías plomo-ácido AGM. Soportan altos valores de carga y descarga, con un diseño-vida superior a 15 años.

Se pueden almacenar por largos periodos de tiempo y poseen un rango extendido de temperatura. Con una tensión nominal de 2V, rango de capacidad entre 2,5 y 25Ah, se pueden realizar configuraciones y montajes de forma sencilla.

Esta interesante gama de baterías de 2V con mínima autodescarga y tiempos rápidos de carga son las más indicadas para aplicaciones de uso estacionario y cíclico.

Almost all models of AGM lead-acid on the market are of prismatic shape. But there is one type of battery, called CYCLON, which are cylindrical in shape.

By their structure, internal construction and materials used, these batteries have characteristics that make them superior to most other models AGM lead-acid batteries. Withstand high charging and discharging rates, with a design exceeding 15 years of life.

They can be stored for long periods of time and have an extended temperature range. With a rated voltage of 2V and a capacity range from 2.5 up to 25Ah, they can be easily assembled in packs with different configurations.

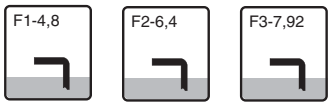
This interesting series of 2V batteries with low self-discharge and fast charging times is best suited for applications in stationary and cyclical use.

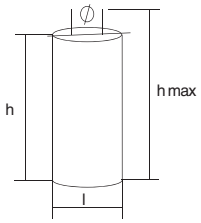
Cyclon 2V

Cyclon 2V

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C20) CAPACITY (Ah-C20)	DIÁMETRO (⌀) DIAMETER (⌀)	ALTO (h) HEIGHT (h)	ALTURA MAX. (h max) MAX. HEIGHT (h max)	PESO WEIGHT	CONEXIÓN CONNECTION
0810-0004	2,0 V	2,5 Ah	34,3 mm	61,2 mm	69,9 mm	0,18 kg	F1-4,8
0860-0004	2,0 V	4,5 Ah	34,3 mm	96,0 mm	103,0 mm	0,27 kg	F1-4,8
0800-0004	2,0 V	5,0 Ah	44,5 mm	72,9 mm	81,5 mm	0,36 kg	F2-6,4
0850-0004	2,0 V	8,0 Ah	44,5 mm	100,1 mm	108,7 mm	0,49 kg	F2-6,4
0840-0004	2,0 V	12,0 Ah	51,8 mm	123,2 mm	135,8 mm	0,84 kg	F3-7,92
0820-0004	2,0 V	25,0 Ah	65,3 mm	158,8 mm	173,3 mm	1,67 kg	M8/M6

Terminales / Connections





Baterías cilíndricas

Cylindrical batteries

Cyclon Monoblock 4V, 6V y 12V

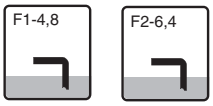
Existe la opción de combinar elementos de 2V para obtener tensión de 4V, 6V y 12V, en encapsulado hermético o monoblock.

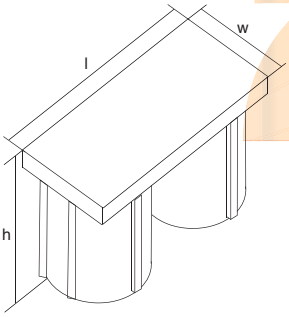
Cyclon Monoblock 4V, 6V and 12V

There is a chance to connect 2V elements to obtain 4V, 6V or 12V, in a hermetic or monoblock encapsulate.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C20) CAPACITY (Ah-C20)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	PESO WEIGHT	CONEXIÓN CONNECTION
0819-0010	4,0 V	2,5 Ah	79,5 mm	46,0 mm	69,9 mm	0,36 kg	F1-4,8
0809-0010	4,0 V	5,0 Ah	96,5 mm	53,8 mm	76,7 mm	0,74 kg	F2-6,4
0859-0010	4,0 V	8,0 Ah	96,8 mm	54,1 mm	101,6 mm	0,96 kg	F2-6,4
0819-0012	6,0 V	2,5 Ah	113,8 mm	46,0 mm	69,9 mm	0,52 kg	F1-4,8
0809-0012	6,0 V	5,0 Ah	139,2 mm	53,8 mm	76,7 mm	0,98 kg	F2-6,4
0859-0012	6,0 V	8,0 Ah	139,2 mm	54,1 mm	101,6 mm	1,43 kg	F2-6,4
0819-0030	12,0 V	2,5 Ah	113,8 mm	89,4 mm	70,4 mm	1,04 kg	F2-6,4
0809-0030	12,0 V	5,0 Ah	139,2 mm	106,2 mm	77,2 mm	1,96 kg	F2-6,4
0859-0030	12,0 V	8,0 Ah	139,2 mm	106,2 mm	102,1 mm	2,86 kg	F2-6,4
0819-0016	12,0 V	2,5 Ah	224,5 mm	46,0 mm	70,4 mm	1,04 kg	F2-6,4
0809-0016	12,0 V	5,0 Ah	276,4 mm	53,8 mm	77,2 mm	1,96 kg	F2-6,4
0859-0016	12,0 V	8,0 Ah	276,4 mm	54,1 mm	102,1 mm	2,86 kg	F2-6,4

Terminales / Connections





Baterías cíclicas

Cyclical batteries

Sonnenschein- Serie GF-Y

Baterías para uso cíclico de tracción y potencia. Poseen una vida de 450 ciclos (según la norma IEC-60254-1 al 75% de profundidad de descarga (DOD)).

Su rango de tensión es de 12 voltios y su rango de capacidad va de 15 hasta 110Ah.

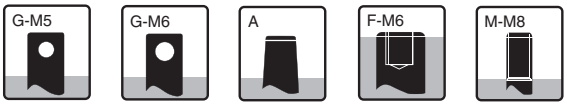
Sonnenschein - GF-Y Series

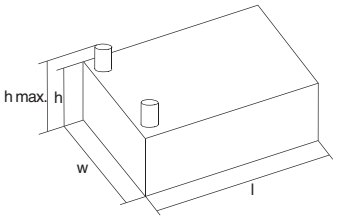
Batteries for cyclical used. They have a life of 450 cycles (according to IEC-60254-1 regulation with 75% depth of discharge (DOD)).

Its rated voltage is 12 volt and its range of capacity is from 15 to 110Ah.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C20) CAPACITY (Ah-C20)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	PESO WEIGHT	CONEXIÓN CONNECTION
GF 12 014 Y F	12,0 V	15,0 Ah	181,0 mm	76,0 mm	167,0 mm	6,0 kg	G-M5
GF 12 022 Y F	12,0 V	24,0 Ah	167,0 mm	176,0 mm	126,0 mm	9,6 kg	G-M5
GF 12 025 Y G	12,0 V	28,0 Ah	197,0 mm	132,0 mm	180,0 mm	11,1 kg	G-M6
GF 12 033 Y 1	12,0 V	38,0 Ah	210,0 mm	175,0 mm	175,0 mm	14,6 kg	A
GF 12 033 Y G1	12,0 V	38,0 Ah	210,0 mm	175,0 mm	75,0 mm	14,6 kg	G-M6
GF 12 033 Y 2	12,0 V	38,0 Ah	210,0 mm	175,0 mm	175,0 mm	14,6 kg	A
GF 12 033 Y G2	12,0 V	38,0 Ah	210,0 mm	175,0 mm	175,0 mm	14,6 kg	G-M6
GF 12 033 Y M4	12,0 V	38,0 Ah	196,0 mm	176,0 mm	175,0 mm	14,5 kg	M-M8
GF 12 040 Y	12,0 V	48,0 Ah	242,0 mm	175,0 mm	190,0 mm	17,5 kg	A
GF 12 044 Y	12,0 V	50,0 Ah	261,0 mm	135,0 mm	230,0 mm	19,0 kg	A
GF 12 051 Y 1	12,0 V	56,0 Ah	278,0 mm	175,0 mm	190,0 mm	20,8 kg	A
GF 12 051 Y 2	12,0 V	56,0 Ah	278,0 mm	175,0 mm	190,0 mm	20,8 kg	A
GF 12 051 Y G1	12,0 V	56,0 Ah	278,0 mm	175,0 mm	190,0 mm	20,8 kg	G-M6
GF 12 052 Y O	12,0 V	60,0 Ah	261,0 mm	170,0 mm	178,0 mm	19,8 kg	F-M6
GF 12 063 Y O	12,0 V	70,0 Ah	261,0 mm	171,0 mm	210,0 mm	23,0 kg	F-M6
GF 12 065 Y	12,0 V	78,0 Ah	353,0 mm	175,0 mm	190,0 mm	26,8 kg	A
GF 12 072 Y	12,0 V	80,0 Ah	330,0 mm	171,0 mm	236,0 mm	30,0 kg	A
GF 12 094 Y	12,0 V	110,0 Ah	286,0 mm	269,0 mm	230,0 mm	38,5 kg	A

Terminales / Connections





Baterías cíclicas

Cyclical batteries

Liven- Series LEVG/LVG

Las baterías de Gel LIVEN series LEVG y LVG están diseñadas para uso cíclico continuo y poseen un alto valor de profundidad de descarga.

Las aplicaciones típicas de uso cíclico (tracción y potencia) son: vehículo eléctrico, carro de golf, sillas de ruedas, etc.

Estas series LEVG/LVG también són válidas para uso estacionario, como puede ser: SAI, Sistemas de seguridad, etc.

Tiene un voltaje nominal de 12V y su rango de capacidad está entre 17Ah y 96Ah.

Liven - LEVG/LVG series

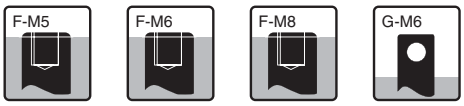
The LEVG and LVG series from LIVEN Gel batteries, are designed for continuous cyclic use and posses a high deep of discharge value.

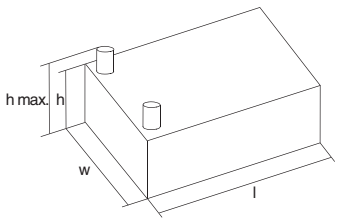
The typical aplications for cyclic use (traction and power) are: electric vehicle, golf cart, wheelchairs, etc.

These LEGV/LVG series are also valid for stationary use, like: UPS, safety systems, etc. They have a nominal voltage of 12V and its capacity range is between 17Ah and 96Ah.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C20) CAPACITY (Ah-C20)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	ALTURA MAX. (h max.) HEIGHT MAX (h max.)	PESO WEIGHT	CONEXIÓN CONNECTION
LEVG17-12	12,0 V	17,0 Ah	181,0 mm	76,0 mm	167,0 mm	167,0 mm	5,8 kg	F-M5
LEVG24-12	12,0 V	24,0 Ah	166,0 mm	175,0 mm	125,0 mm	125,0 mm	8,7 kg	F-M5
LEVG32-12	12,0 V	32,0 Ah	195,0 mm	130,0 mm	167,0 mm	164,0 mm	10,7 kg	F-M5
LEVG40-12	12,0 V	40,0 Ah	197,0 mm	165,0 mm	170,0 mm	170,0 mm	13,5 kg	F-M6
LEVG50-12	12,0 V	50,0 Ah	229,0 mm	138,0 mm	205,0 mm	211,0 mm	17,6 kg	F-M6
LEVG60-12	12,0 V	60,0 Ah	259,0 mm	168,0 mm	190,0 mm	190,0 mm	19,7 kg	F-M6
LEVG70-12	12,0 V	70,0 Ah	259,0 mm	168,0 mm	208,0 mm	210,0 mm	25,0 kg	G-M9
LVG85-12	12,0 V	85,0 Ah	305,0 mm	168,0 mm	207,0 mm	213,0 mm	28,0 kg	F-M6
LVG100-12	12,0 V	96,0 Ah	330,0 mm	173,0 mm	212,0 mm	220,0 mm	31,0 kg	F-M8

Terminales / Connections





Baterías de tracción

Traction batteries

Sonnenschein - Serie GF-V

Baterías para uso de tracción y potencia. Poseen una vida de 700 ciclos (según la norma IEC-254-1 al 75% de profundidad de descarga (DOD)).

Su rango de tensión es de 6 o 12 voltios y su rango de intensidad va de 55 hasta 270Ah.

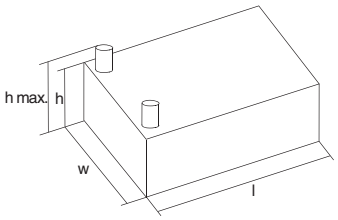
Sonnenschein - GF-V Series

Batteries for traction and power used. They have a life of 700 cycles (according to IEC-254-1 regulation with 75% depth of discharge (DOD)).

Its rated voltage is 6 or 12 volt and its range of capacity is from 55 to 270Ah.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C20) CAPACITY (Ah-C20)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	ALTURA MAX. (h max.) HEIGHT MAX (h max.)	PESO (w) WEIGHT (w)	CONEXIÓN CONNECTION
GF 06 160 V 1	6,0 V	196,0 Ah	246,0 mm	192,0 mm	275,0 mm	275,0 mm	29,0 kg	A
GF 06 160 V 2	6,0 V	196,0 Ah	264,0 mm	183,0 mm	270,0 mm	270,0 mm	33,0 kg	A
GF 06 180 V	6,0 V	200,0 Ah	246,0 mm	192,0 mm	275,0 mm	275,0 mm	31,0 kg	A
GF 06 180 V Q	6,0 V	200,0 Ah	246,0 mm	192,0 mm	284,0 mm	284,0 mm	31,5 kg	F-M10
GF 06 240 V	6,0 V	270,0 Ah	311,0 mm	183,0 mm	358,0 mm	358,0 mm	47,0 kg	A
GF 12 050 V	12,0 V	55,0 Ah	278,0 mm	175,0 mm	190,0 mm	190,0 mm	19,0 kg	A
GF 12 050 V G	12,0 V	55,0 Ah	278,0 mm	175,0 mm	190,0 mm	190,0 mm	19,0 kg	G-M6
GF 12 070 V	12,0 V	79,0 Ah	330,0 mm	171,0 mm	236,0 mm	236,0 mm	26,5 kg	A
GF 12 076 V	12,0 V	86,0 Ah	330,0 mm	171,0 mm	236,0 mm	236,0 mm	28,8 kg	A
GF 12 090 V	12,0 V	98,0 Ah	513,0 mm	189,0 mm	219,0 mm	219,0 mm	36,5 kg	A
GF 12 105 V	12,0 V	120,0 Ah	345,0 mm	174,0 mm	283,0 mm	283,0 mm	37,5 kg	A
GF 12 110 V	12,0 V	120,0 Ah	513,0 mm	223,0 mm	219,0 mm	219,0 mm	45,5 kg	A
GF 12 160 V	12,0 V	196,0 Ah	518,0 mm	274,0 mm	238,0 mm	238,0 mm	62,5 kg	A

Terminales / Connections



Baterías de uso estacionario

Batteries for stationary use

Sonnenschein - Serie A500

Las baterías de Gel Sonnenschein A500, están indicadas para aplicaciones de uso principalmente estacionario y tienen un diseño-vida es de 6 o 9 años, con un bajo índice de autodescarga.

Su rango de tensión es de 2 a 12 voltios, y su rango de capacidad va de 1,2 hasta 200Ah.

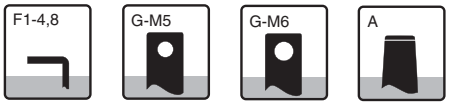
Sonnenschein - A500 Series

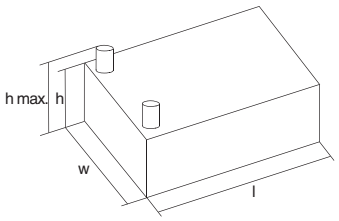
Dryfit Sonnenschein A500, batteries are most suitable for applications in stationary use and they have a design-life is of 6 o 9 years, with a very low self-discharge

Its rated voltage is 2 to 12 volt and its range of capacity is from 1,2 to 200Ah.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C20) CAPACITY (Ah-C20)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	ALTURA MAX (h max.) HEIGHT MAX (h max.)	PESO WEIGHT	CONEXIÓN CONNECTION
A502/10 S	2,0 V	10,0 Ah	52,9 mm	50,5 mm	94,5 mm	98,4 mm	0,70 kg	F1-4,8
A504/3,5 S	4,0 V	3,5 Ah	90,5 mm	34,5 mm	60,5 mm	64,4 mm	0,50 kg	F1-4,8
A506/1,2 S	6,0 V	1,2 Ah	97,3 mm	25,5 mm	51,0 mm	55,6 mm	0,33 kg	F1-4,8
A506/3,5 S	6,0 V	3,5 Ah	135,0 mm	34,8 mm	60,5 mm	64,4 mm	0,70 kg	F1-4,8
A506/6,5 S	6,0 V	6,5 Ah	152,0 mm	34,5 mm	94,5 mm	98,4 mm	1,30 kg	F1-4,8
A506/10 S	6,0 V	10,0 Ah	152,0 mm	50,5 mm	94,5 mm	98,4 mm	2,10 kg	F1-4,8
A508/3,5 S	8,0 V	3,5 Ah	179,0 mm	34,1 mm	60,5 mm	64,4 mm	1,00 kg	F1-4,8
A512/1,2 S	12,0 V	1,2 Ah	97,5 mm	49,5 mm	51,0 mm	54,9 mm	0,65 kg	F1-4,8
A512/2 S	12,0 V	2,0 Ah	179,0 mm	34,1 mm	60,5 mm	64,4 mm	1,00 kg	F1-4,8
A512/3,5 S	12,0 V	3,5 Ah	135,0 mm	66,8 mm	60,5 mm	64,4 mm	1,50 kg	F1-4,8
A512/6,5 S	12,0 V	6,5 Ah	152,0 mm	65,5 mm	94,5 mm	98,4 mm	2,60 kg	F1-4,8
A512/10 S	12,0 V	10,0 Ah	152,0 mm	98,0 mm	94,5 mm	98,4 mm	4,00 kg	F1-4,8
A512/16 G5	12,0 V	16,0 Ah	181,0 mm	76,0 mm	167 mm	167,0 mm	6,00 kg	G-M5
A512/25 G5	12,0 V	25,0 Ah	167,0 mm	176,0 mm	126 mm	126,0 mm	9,60 kg	G-M5
A512/30 G6	12,0 V	30,0 Ah	197,0 mm	132,0 mm	161 mm	180,0 mm	11,10 kg	G-M6
A512/40 A	12,0 V	40,0 Ah	210,0 mm	175,0 mm	175 mm	175,0 mm	14,50 kg	A
A512/40 G6	12,0 V	40,0 Ah	210,0 mm	175,0 mm	175 mm	175,0 mm	14,60 kg	G-M6
A512/55 A	12,0 V	55,0 Ah	261,0 mm	135,0 mm	208 mm	230,0 mm	18,80 kg	A
A512/60 A	12,0 V	60,0 Ah	278,0 mm	175,0 mm	190 mm	190,0 mm	20,80 kg	A
A512/60 G6	12,0 V	60,0 Ah	278,0 mm	175,0 mm	190 mm	190,0 mm	20,80 kg	G-M6
A512/65 A	12,0 V	65,0 Ah	353,0 mm	175,0 mm	190 mm	190,0 mm	24,40 kg	A
A512/65 G6	12,0 V	65,0 Ah	353,0 mm	175,0 mm	190 mm	190,0 mm	24,40 kg	G-M6
A512/85 A	12,0 V	85,0 Ah	330,0 mm	171,0 mm	213 mm	236,0 mm	30,00 kg	A
A512/115 A	12,0 V	115,0 Ah	286,0 mm	269,0 mm	208 mm	230,0 mm	40,00 kg	A
A512/120 A	12,0 V	120,0 Ah	513,0 mm	189,0 mm	195 mm	223,0 mm	41,00 kg	A
A512/140 A	12,0 V	140,0 Ah	513,0 mm	223,0 mm	195 mm	223,0 mm	47,00 kg	A
A512/200 A	12,0 V	200,0 Ah	518,0 mm	274,0 mm	216 mm	238,0 mm	67,00 kg	A

Terminales / Connections





Baterías de uso estacionario

Batteries for stationary use

Sonnenschein - Serie A400

Están indicadas para aplicaciones de uso principalmente estacionario, con un nivel muy bajo de autodescarga y con un diseño-vida de 12 años. Posee un bajo índince de autodescarga.

Su rango de capacidad es de 6 o 12 voltios. Su rango de intensidad va de 5,5 hasta 180Ah.

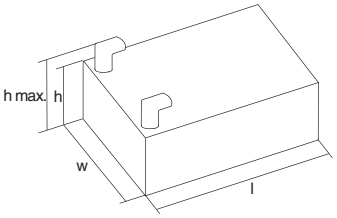
Sonnenschein - A400 Series

They are suitable for applications in stationary use with a very low self-discharge and with a design of 12 years life.

Its rated voltage is 6-12V and its range of capacity goes from 5,5 to 180Ah.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C10) CAPACITY (Ah-C10)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	PESO WEIGHT	CONEXIÓN CONNECTION
A406/165 A	6,0 V	165,0 Ah	246,0 mm	192,0 mm	275,0 mm	28,0 kg	A
A406/165 F10	6,0 V	165,0 Ah	246,0 mm	192,0 mm	282,0 mm	28,5 kg	F-M10
A412/5,5 SR	12,0 V	5,5 Ah	152,0 mm	65,5 mm	98,4 mm	2,5 kg	F2-6,4
A412/8,5 SR	12,0 V	8,5 Ah	152,0 mm	98,0 mm	98,4,0 mm	3,6 kg	F2-6,4
A412/12 SR	12,0 V	12,0 Ah	181,0 mm	76,0 mm	157,0 mm	5,6 kg	F2-6,4
A412/20 G5	12,0 V	20,0 Ah	167,0 mm	176,0 mm	126,0 mm	9,0 kg	G-M5
A412/32 G6	12,0 V	32,0 Ah	210,0 mm	175,0 mm	175,0 mm	13,6 kg	G-M6
A412/32 F10	12,0 V	32,0 Ah	210,0 mm	175,0 mm	181,0 mm	14,1 kg	F-M10
A412/50 A	12,0 V	50,0 Ah	278,0 mm	175,0 mm	190,0 mm	18,5 kg	A
A412/50 F10	12,0 V	50,0 Ah	278,0 mm	175,0 mm	196,0 mm	19,0 kg	F-M10
A412/50 G6	12,0 V	50,0 Ah	278,0 mm	175,0 mm	190,0 mm	18,5 kg	G-M6
A412/65 F10	12,0 V	65,0 Ah	353,0 mm	175,0 mm	196,0 mm	23,5 kg	F-M10
A412/65 G6	12,0 V	65,0 Ah	353,0 mm	175,0 mm	190,0 mm	23,0 kg	G-M6
A412/85 F10	12,0 V	85,0 Ah	204,0 mm	244,0 mm	276,0 mm	32,0 kg	F-M10
A412/90 A	12,0 V	90,0 Ah	284,0 mm	267,0 mm	230,0 mm	34,5 kg	A
A412/90 F10	12,0 V	90,0 Ah	284,0 mm	267,0 mm	237,0 mm	35,0 kg	F-M10
A412/100 A	12,0 V	100,0 Ah	513,0 mm	189,0 mm	223,0 mm	36,5 kg	A
A412/100 F10	12,0 V	100,0 Ah	513,0 mm	189,0 mm	223,0 mm	37,0 kg	F-M10
A412/120 A	12,0 V	120,0 Ah	513,0 mm	223,0 mm	223,0 mm	45,5 kg	A
A412/120 F10	12,0 V	120,0 Ah	513,0 mm	223,0 mm	223,0 mm	46,0 kg	F-M10
A412/180 A	12,0 V	180,0 Ah	518,0 mm	274,0 mm	238,0 mm	64,0 kg	A
A412/180 F10	12,0 V	180,0 Ah	518,0 mm	274,0 mm	244,0 mm	64,5 kg	F-M10

Terminales / Connections



Baterías solares Solar batteries

Sonnenschein - Serie Solar

Son baterías para uso cíclico solar, en instalaciones pequeñas y de mediana potencia. Poseen una vida de 800 ciclos (según la norma IEC-896-2 con 60% de profundidad de descarga (DOD) y velocidad descarga C100.

Su rango de tensión es de 12 voltios y su rango de intensidad va de 6,6 hasta 230Ah.

Sonnenschein - Solar Series

Cyclical solar batteries are used in small and medium power installations.

They have a life of 800 cycles according to IEC 896-2 regulation with 60% depth of discharge (DOD) and discharge of C100.

Its rated voltage is 12 volt and its range of capacity is from 6,6 to 230Ah.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C100) CAPACITY (Ah-C100)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	ALTURA MAX (h max.) HEIGHT MAX (h max.)	PESO WEIGHT	CONEXIÓN CONNECTION
S12/6,6 S	12,0 V	6,6 Ah	152,0 mm	65,5 mm	98,4 mm	98,4 mm	2,6 kg	F1-4,8
S12/17 G5	12,0 V	17,0 Ah	181,0 mm	76,0 mm	167,0 mm	167,0 mm	6,1 kg	G-M5
S12/27 G5	12,0 V	27,0 Ah	167,0 mm	176,0 mm	126,0 mm	126,0 mm	9,6 kg	G-M5
S12/32 G6	12,0 V	32,0 Ah	197,0 mm	132,0 mm	184,0 mm	184,0 mm	11,1 kg	G-M6
S12/41 A	12,0 V	41,0 Ah	210,0 mm	175,0 mm	175,0 mm	175,0 mm	14,6 kg	A
S12/60 A	12,0 V	60,0 Ah	261,0 mm	136,0 mm	230,0 mm	230,0 mm	19,0 kg	A
S12/85 A	12,0 V	85,0 Ah	353,0 mm	175,0 mm	190,0 mm	190,0 mm	26,8 kg	A
S12/90 A	12,0 V	90,0 Ah	330,0 mm	171,0 mm	236,0 mm	236,0 mm	30,0 kg	A
S12/130 A	12,0 V	130,0 Ah	286,0 mm	269,0 mm	230,0 mm	230,0 mm	39,0 kg	A
S12/230 A	12,0 V	230,0 Ah	518,0 mm	274,0 mm	238,0 mm	238,0 mm	67,0 kg	A

Sonnenschein - Serie Solar Block

Son baterías para uso cíclico solar, en instalaciones pequeñas y de mediana potencia. Poseen una vida de 1200 ciclos según la norma IEC-896-2 con 60% de profundidad de descarga (DOD) y descarga C100.

Su rango de tensión es de 6 o 12 voltios y su rango de intensidad va de 60 hasta 330Ah.

Sonnenschein - Solar Block Series

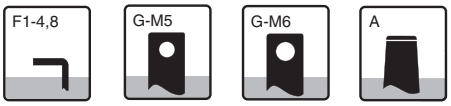
Cyclical solar batteries are used in small and medium power installations.

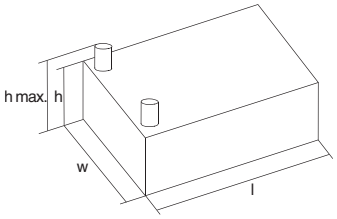
They have a life of 1200 cycles according to IEC 896-2 regulation with 60% depth of discharge (DOD) and discharge of C100.

Its rated voltage is 6 or 12 volt and its range of capacity is from 60 to 330Ah.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C100) CAPACITY (Ah-C100)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	ALTURA MAX (h max.) HEIGHT MAX (h max.)	PESO WEIGHT	CONEXIÓN CONNECTION
SB12/60 A	12,0 V	60,0 Ah	278,0 mm	175,0 mm	190,0 mm	190,0 mm	19,0 kg	A
SB12/75 A	12,0 V	75,0 Ah	330,0 mm	171,0 mm	214,0 mm	236,0 mm	26,5 kg	A
SB12/100 A	12,0 V	100,0 Ah	513,0 mm	189,0 mm	195,0 mm	223,0 mm	36,5 kg	A
SB12/130 A	12,0 V	130,0 Ah	513,0 mm	223,0 mm	195,0 mm	223,0 mm	45,5 kg	A
SB12/185 A	12,0 V	185,0 Ah	518,0 mm	274,0 mm	216,0 mm	238,0 mm	62,5 kg	A
SB6/200 A	6,0 V	200,0 Ah	246,0 mm	192,0 mm	254,0 mm	275,0 mm	29,0 kg	A
SB6/330 A	6,0 V	330,0 Ah	312,0 mm	182,0 mm	337,0 mm	359,0 mm	47,0 kg	A

Terminales / Connections





Baterías solares

Solar batteries

Sonnenschein - Serie A600 Solar

Esta gama es para uso cíclico solar, en instalaciones de mediana y alta potencia potencia. Poseen una vida de 3000 ciclos según la norma IEC-896-2 al 60% de profundidad de descarga (DOD) y velocidad de descarga C120.

Su rango de tensión es de 2 voltios y su rango de intensidad va de 294 hasta 3919Ah.

Sonnenschein - Solar A600 Series

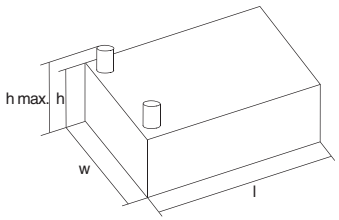
This range are for cyclical solar used, in medium and high power installations.

They have a life of 3000 cycles according to IEC 896-2 regulation with 60% depth of discharge (DOD) and discharge speed of C120.

Its rated voltage is 2 volt and its range of capacity is from 294 to 3919Ah.

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C120) CAPACITY (Ah-C120)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	ALTURA MAX (h max.) HEIGHT MAX (h max.)	PESO WEIGHT	CONEXIÓN CONNECTION
A602/295 Solar	2,0 V	294,0 Ah	105,0 mm	208,0 mm	357,0 mm	399,0 mm	19,0 kg	F-M8
A602/370 Solar	2,0 V	367,0 Ah	126,0 mm	208,0 mm	357,0 mm	399,0 mm	23,0 kg	F-M8
A602/440 Solar	2,0 V	440,0 Ah	147,0 mm	208,0 mm	357,0 mm	399,0 mm	27,0 kg	F-M8
A602/520 Solar	2,0 V	519,0 Ah	126,0 mm	208,0 mm	473,0 mm	515,0 mm	30,0 kg	F-M8
A602/625 Solar	2,0 V	623,0 Ah	147,0 mm	208,0 mm	473,0 mm	515,0 mm	35,0 kg	F-M8
A602/750 Solar	2,0 V	727,0 Ah	168,0 mm	208,0 mm	473,0 mm	515,0 mm	39,0 kg	F-M8
A602/850 Solar	2,0 V	848,0 Ah	147,0 mm	208,0 mm	648,0 mm	690,0 mm	49,0 kg	F-M8
A602/1130 Solar	2,0 V	1131,0 Ah	212,0 mm	193,0 mm	648,0 mm	690,0 mm	66,0 kg	F-M8
A602/1415 Solar	2,0 V	1413,0 Ah	212,0 mm	235,0 mm	648,0 mm	690,0 mm	80,0 kg	F-M8
A602/1695 Solar	2,0 V	1695,0 Ah	212,0 mm	277,0 mm	648,0 mm	690,0 mm	95,0 kg	F-M8
A602/1960C Solar	2,0 V	1959,0 Ah	212,0 mm	277,0 mm	719,0 mm	759,0 mm	115,0 kg	F-M8
A602/2600 Solar	2,0 V	2613,0 Ah	216,0 mm	400,0 mm	775,0 mm	816,0 mm	160,0 kg	F-M8
A602/3270 Solar	2,0 V	3266,0 Ah	214,0 mm	489,0 mm	775,0 mm	816,0 mm	198,0 kg	F-M8
A602/3920 Solar	2,0 V	3919,0 Ah	214,0 mm	578,0 mm	775,0 mm	816,0 mm	238,0 kg	F-M8

Terminales / Connections



Batería cíclica

Esta serie es un tipo especial de batería de plomo-acido. Su estructura interna es similar a una AGM pero su electrolito está parcialmente gelificado.

Esto permite tener más prestaciones que una AGM, como puede ser un incremento del nº de ciclos de descarga profunda.

Su campo de aplicación es muy variado, tanto para uso cíclico como estacionario: carritos de golf, sillas de minusválido, sistemas de emergencia, SAI´s, etc.

Posee un ciclado de 350 ciclos (100% DOD) hasta 1800 ciclos (15% DOD).

Su voltaje nominal es de 12V y su rango de capacidad disponible va desde 100 hasta 260Ah.

Cyclical batteries

This series is a special type of lead-acid battery. Its internal structure is similar to an AGM one, but its electrolite is partially gelified.

This allows a better performance than an AGM, like an increase of its deep discharge cycles.

Its field of application is very diverse, from cyclic to stationary use: golf cart, wheelchairs, emergency systems, UPS, etc.

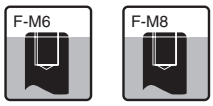
It can cycle from 350(100% DOD) to 1800(15%DOD) times. Its nominal voltage is 12V and its capacity range is from 100Ah to 200Ah.

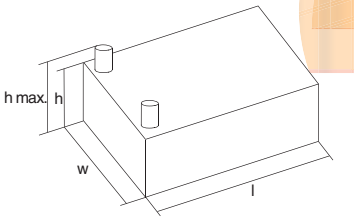
Serie LVJ

LVJ series

REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD (Ah-C120) CAPACITY (Ah-C120)	LARGO (l) LENGTH (l)	ANCHO (w) WIDTH (w)	ALTO (h) HEIGHT (h)	ALTURA MAX (h max.) HEIGHT MAX (h max.)	PESO WEIGHT	CONEXIÓN CONNECTION
LVJ100-12	12,0 V	100	330,0 mm	173,0 mm	217,0 mm	223,0 mm	34,60 kg	F-M8
LVJ120-12	12,0 V	120	407,0 mm	173,0 mm	224,0 mm	231,5 mm	41,50 kg	F-M8
LVJ150-12	12,0 V	150	485,0 mm	172,0 mm	233,0 mm	243,0 mm	42,30 kg	F-M8
LVJ200-12	12,0 V	200	522,0 mm	239,0 mm	220,0 mm	245,0 mm	58,50 kg	F-M8
LVJ260-12	12,0 V	260	521,0 mm	269,0 mm	220,0 mm	225,0 mm	74,00 kg	F-M8

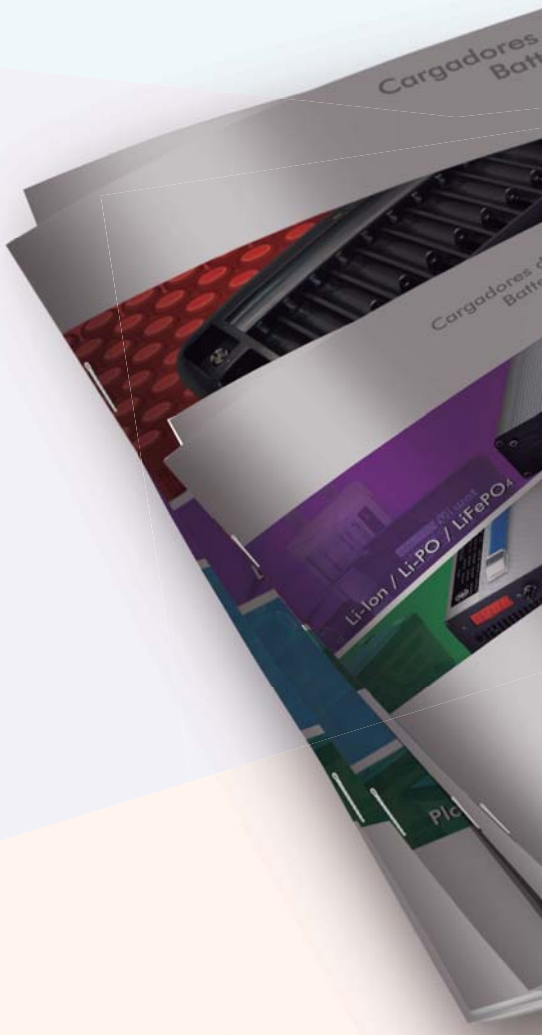
Terminales / Connections





Disponemos de cargadores
There are chargers availab

Níquel
Nickel



Plomo Ácido
Lead Acid

Consulte con nuestro departamento comercial
You can check with our supplier

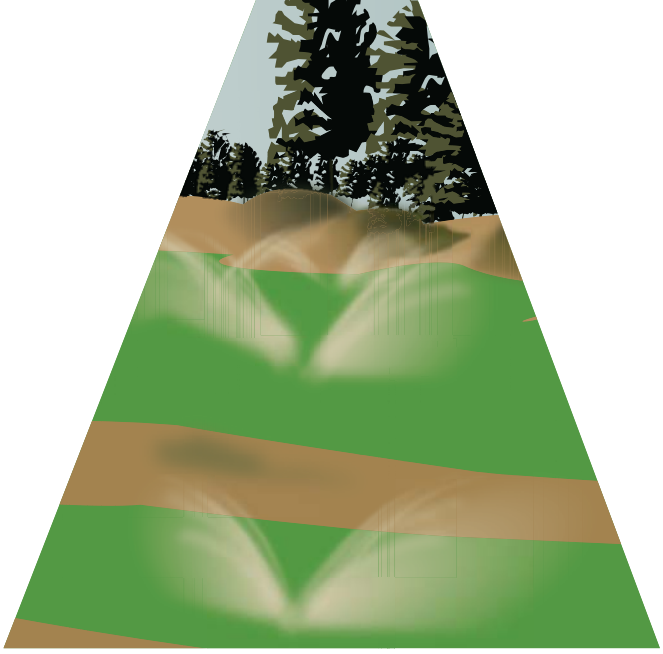
para todo tipo de baterías
ble for all type of batteries

Li-Ion / Li-PO

LiFePO4

PILAS DE LITIO NO RECARGABLES

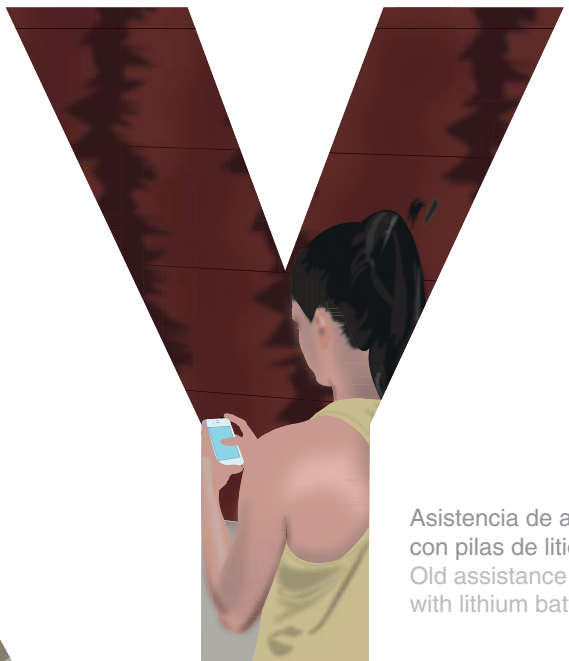
NO RECHARGEABLE LITHIUM BATTERIES



Control de riego a distancia con pilas de litio
Remote control irrigation with lithium batteries

Contador de luz con pilas de litio
Light meter with lithium batteries

Báscula con pilas de litio
Flashlight with lithium batteries



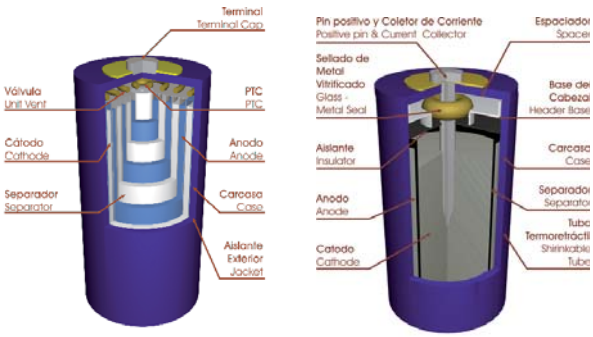
Asistencia de ancianos
con pilas de litio
Old assistance
with lithium batteries

1.- Descripción

Alta energía especifica, tiempos largos de almacenamiento y energía inmediata son las características que hacen destacar a las pilas no recargables frente a otros tipos de fuentes de energía. Se pueden llevarse a lugares remotos y usarse al instante, incluso después de largos periodos de almacenamiento. También son respetuosas con el medio ambiente a la hora de desecharlas.

Las pilas más populares son las alcalinas. Pero las pilas de Litio se han usando ampliamente en la industria. Hay dos tecnologías, LiSOCl2, que puede desarrollar 3,6V, y LiMnO2, que desarrolla 3V. Además, hay dos sistemas de construcción mecánica principalmente. Con una estructura de bobina, las pilas son más adecuadas para el uso estacionario. Por otra parte, una estructura espiral es más adecuada para altas descargas de corriente. Aparte de estas características, este tipo de pilas tienen un rango de temperatura extendido y muy baja autodescarga. Pero su característica principal es su alta densidad de carga.

Estas características las hacen muy adecuadas para aplicaciones de larga duración, o cuando se necesita alta potencia y ligereza.



2.- Elección de la serie y estructura correcta

Debe elegirse la quimica interna dependiendo de las necesidades de voltaje. Por tanto, se debe elegir entre las series ER(3,6V) o CR(3V). El siguiente paso depende de las necesidades de energía. Debe tenerse en cuenta que las pilas de alta capacidad no pueden entregar alta potencia, y viceversa.

Otra característica importante que se debe tener en cuenta es el rango de temperatura. Estas pilas tienen un rango de temperatura de trabajo mayor, pero la pila debe cumplir con los requisitos de la aplicación.

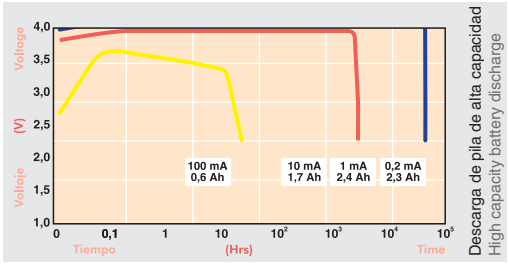
3.- Precauciones

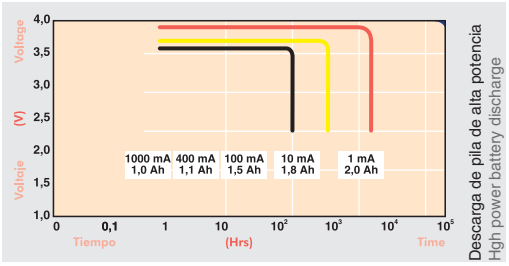
Las pilas de Litio contienen disolventes orgánicos y materiales combustibles. Su manipulación debe hacerse con precaución teniendo muy en cuenta las siguientes consideraciones:

- Estas pilas no se pueden cargar. Cualquier corriente inversa tiene riesgo de fuego o incluso explosión.
- No se debe invertir la polaridad.
- No se deben cortocircuitar.
- No se deben soldar directamente.
- No se deben calentar o poner en contacto directo con llamas.
- El uso de estas pilas por encima de sus caracteristicas o estas consideraciones tiene riesgo de fuego o incluso explosión.

1.- Description

High specific energy, long storage times and instant readiness give non rechargeable batteries a unique advantage over other power sources. They can be carried to remote locations and used instantly, even after long storage; they are also readily available and environmentally friendly when disposed. The most popular non rechargeable battery is alkaline. But Lithum based batteries had being used widely in the industry. There are two technologies, LiSOCl2, which can develop 3,6 Volts, and LiMnO2, which develops 3V. Also, there are two mainly mechanical construction system. With a bobin structure, the batteries are more suitable for stationary use. In the other hand, a spirally wounded structure is best suited for high current discharges.Apart from these characteristics, this type of batteries have an extended temperature range and very low self-discharge ratio. But their main characteristic is their high charge density.These features make them suitable for long life applications, or when high power and lightness is needed.





2.- Choose right serie and structure

The chemistry must be selected, depending on the voltage needs. Therefore, ER(3,6V) or CR(3V) series must be chosen. The next step depends on the power needs. Must be kept in mind that high capacity batteries cannot deliver high power, and vice versa.
Other important feature that must be taken into account is the temperature range. These batteries have a better temperature working range, but the battery must meet the applications requirements.

3.- Warning

Lithium batteries are manufactured with organic solvents and combustible materials. Handling very special carefully and beware with following limitations:

- These batteries cannot be charged. Any inverse current can provoke fire or even explosion.
- Avoid polarity inverting.
- Avoid shortcircuit.
- Avoid soldering.
- Avoid heating or direct contact with fire
- Stresses above the limits of the batteries or these limits can cause fire or even explosion.

3,6V alta capacidad

3,6V high capacity

REFERENCIA PART NUMBER	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA CORRIENTE MAX. CONTINUA MAX. DISCHARGE CURRENT CONTINOUS	DESCARGA CORRIENTE MAX. PULSOS MAX. DISCHARGE CURRENT PULSE	TEMPERATURA TEMPERATURE	DIAMETRO DIAMETER	ALTURA HEIGHT	PESO WEIGHT
FU-PL-ER14250	1200 mAh	15 mA	50 mA	-60 ~ +85 ºC	14,5 mm	25,4 mm	10 g
FU-PL-ER14335	1650 mAh	35 mA	75 mA	-60 ~ +85 ºC	14,5 mm	33,5 mm	12 g
FU-PL-ER14505	2700 mAh	40 mA	150 mA	-60 ~ +85 ºC	14,5 mm	50,5 mm	19 g
FU-PL-ER17505	3600 mAh	130 mA	180 mA	-60 ~ +85 ºC	17,5 mm	50,5 mm	26 g
FU-PL-ER18505	4000 mAh	130 mA	180 mA	-60 ~ +85 ºC	18,7 mm	50,5 mm	28 g
FU-PL-ER26500	8500 mAh	150 mA	300 mA	-60 ~ +85 ºC	26,2 mm	50 mm	52 g
FU-PL-ER34615	19000 mAh	230 mA	400 mA	-60 ~ +85 ºC	33,1 mm	61,5 mm	100 g
FU-PL-ER341245	35000 mAh	420 mA	500 mA	-60 ~ +85 ºC	33,1 mm	124,5 mm	195 g

3,6V alta potencia

3,6V high power

REFERENCIA PART NUMBER	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA CORRIENTE MAX. CONTINUA MAX. DISCHARGE CURRENT CONTINOUS	DESCARGA CORRIENTE MAX. PULSOS MAX. DISCHARGE CURRENT PULSE	TEMPERATURA TEMPERATURE	DIAMETRO DIAMETER	ALTURA HEIGHT	PESO WEIGHT
FU-PL-ER14250M	750 mAh	100 mA	250 mA	-60 ~ +85 ºC	14,5 mm	25,4 mm	10 g
FU-PL-ER14335M	1300 mAh	200 mA	500 mA	-60 ~ +85 ºC	14,5 mm	33,5 mm	15 g
FU-PL-ER14505M	2000 mAh	400 mA	1000 mA	-60 ~ +85 ºC	14,5 mm	50,7 mm	21 g
FU-PL-ER17505M	2800 mAh	1000 mA	2000 mA	-60 ~ +85 ºC	17,5 mm	50,5 mm	29 g
FU-PL-ER18505M	3500 mAh	1000 mA	2000 mA	-60 ~ +85 ºC	18,7 mm	50,5 mm	33 g
FU-PL-ER26500M	6000 mAh	1000 mA	2000 mA	-60 ~ +85 ºC	26,2 mm	50 mm	55 g
FU-PL-ER34615M	13000 mAh	2000 mA	4000 mA	-60 ~ +85 ºC	33,1 mm	61,5 mm	110 g

3,6V alta temperatura

3,6V high temperature

REFERENCIA PART NUMBER	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA CORRIENTE MAX. CONTINUA MAX. DISCHARGE CURRENT CONTINOUS	DESCARGA CORRIENTE MAX. PULSOS MAX. DISCHARGE CURRENT PULSE	TEMPERATURA TEMPERATURE	DIAMETRO DIAMETER	ALTURA HEIGHT	PESO WEIGHT
FU-PL-ER14250S	800 mAh	50 mA	100 mA	-20 ~ +150 ºC	14,5 mm	25,4 mm	10,0 g
FU-PL-ER14505S	1800 mAh	100 mA	200 mA	-40 ~ +150 ºC	14,5 mm	50,7 mm	21,0 g
FU-PL-ER26500S	5500 mAh	150 mA	300 mA	-40 ~ +150 ºC	26,2 mm	50,0 mm	55,0 g
FU-PL-ER34615S	12000 mAh	170 mA	350 mA	-40 ~ +150 ºC	33,1 mm	61,5 mm	110,0 g

3V alta capacidad

3V high capacity

REFERENCIA PART NUMBER	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA ESTANDAR STANDARD DISCHARGE	DESCARGA CORRIENTE MAX. CONTINUA MAX. DISCHARGE CURRENT CONTINOUS	DESCARGA CORRIENTE MAX. PULSOS MAX. DISCHARGE CURRENT PULSE	TEMPERATURA TEMPERATURE	DIAMETRO DIAMETER	ALTURA HEIGHT	PESO WEIGHT
CR10450BL	850 mAh	0,5 mA	10 mA	100 mA	-40 ~ +70 ºC	10,0 mm	45,0 mm	10,0 g
CR14250BL	900 mAh	0,5 mA	7 mA	70 mA	-40 ~ +70 ºC	14,5 mm	25,0 mm	11,0 g
CR14335BL	1100 mAh	0,5 mA	8 mA	80 mA	-40 ~ +70 ºC	14,5 mm	33,5 mm	16,0 g
CR14505BL	1800 mAh	0,5 mA	10 mA	100 mA	-40 ~ +70 ºC	14,5 mm	50,5 mm	22,0 g
CR17335BL	1800 mAh	1,0 mA	10 mA	100 mA	-40 ~ +70 ºC	17,0 mm	33,5 mm	22,0 g
CR17450BL	2400 mAh	1,0 mA	15 mA	150 mA	-40 ~ +70 ºC	17,0 mm	45,0 mm	28,0 g

3V / 6V / 9V alta potencia - crimpadas

3V / 6V /9V high power - crimp sealing

REFERENCIA PART NUMBER	TENSIÓN VOLTAGE	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA ESTÁNDAR STANDARD DISCHARGE	DESCARGA CORRIENTE MAX. CONTINUA MAX. DISCHARGE CURRENT CONTINOUS	DESCARGA CORRIENTE MAX. PULSOS MAX. DISCHARGE CURRENT PULSE	TEMPERATURA TEMPERATURE	DIÁMETRO DIAMETER	ALTURA HEIGHT	PESO WEIGHT
CR425	3 V	25 mAh	0,5 mA	3,0 mA	15,0 mA	-20 ~ +60 ºC	4,1 mm	25,0 mm	0,7 g
CR435	3 V	50 mAh	1,0 mA	5,0 mA	25,0 mA	-20 ~ +60 ºC	4,1 mm	35,0 mm	0,9 g
CR1/3N	3 V	160 mAh	1,0 mA	5,0 mA	80,0 mA	-20 ~ +60 ºC	11,5 mm	10,5 mm	3,3 g
2CR1/3N	3 V	160 mAh	1,0 mA	5,0 mA	80,0 mA	-20 ~ +60 ºC	12,2 mm	24,7 mm	8,0 g
CR14250SC	3 V	650 mAh	20,0 mA	800,0 mA	1500,0 mA	-20 ~ +60 ºC	14,0 mm	25,0 mm	10,0 g
CR14505SC	3 V	1500 mAh	20,0 mA	2000,0 mA	2500,0 mA	-20 ~ +60 ºC	14,5 mm	50,5 mm	15,0 g
CR2	3 V	750 mAh	10,0 mA	800,0 mA	1500,0 mA	-20 ~ +60 ºC	15,3 mm	26,9 mm	13,0 g
CR123A	3 V	1300 mAh	10,0 mA	1000,0 mA	3000,0 mA	-20 ~ +60 ºC	16,7 mm	34,2 mm	17,0 g
CR17450SC	3 V	2200 mAh	20,0 mA	1000,0 mA	3000,0 mA	-20 ~ +60 ºC	17,0 mm	45 mm	24,0 g
CRV3	3 V	2700 mAh	20,0 mA	2000,0 mA	2500,0 mA	-20 ~ +60 ºC	28,6 x 14,4 x 52,2 mm		35,0 g
2CR5	3 V	1300 mAh	10,0 mA	1000,0 mA	3000,0 mA	-20 ~ +60 ºC	34 x 17 x 45 mm		43,0 g
CRP2	6 V	1300 mAh	10,0 mA	1000,0 mA	3000,0 mA	-20 ~ +60 ºC	35 x 19,5 x 36 mm		41,0 g
FU-PL-CR9V	9 V	1200 mAh	9,0 mA	120,0 mA	400,0 mA	-40 ~ +85 ºC	26 x 17,5 x 48,8 mm		50,5 g

3V / 6V alta potencia - sellado laser

3V /6V high power - laser sealing

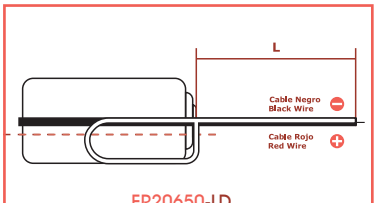
REFERENCIA PART NUMBER	TENSIÓN VOLTAGE	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA ESTÁNDAR STANDARD DISCHARGE	DESCARGA CORRIENTE MAX. CONT. MAX. DISCHARGE CURR. CONT.	DESCARGA CORRIENTE MAX. PULSOS MAX. DISCHAR-GE CURRENT PULSE	TEMPERATURA TEMPERATURE	DIÁMETRO DIAMETER	ALTURA HEIGHT	PESO WEIGHT
CR14250SL	3 V	650 mAh	1,0 mA	800 mA	1500 mA	-40 ~ +70 ºC	14,5 mm	25,0 mm	10,0 g
CR14335SL	3 V	900 mAh	1,0 mA	1000 mA	2000 mA	-40 ~ +70 ºC	14,5 mm	33,5 mm	14,0 g
CR14505SL	3 V	1500 mAh	1,0 mA	2000 mA	3000 mA	-40 ~ +70 ºC	14,5 mm	50,5 mm	21,0 g
CR2SL	3 V	800 mAh	5,0 mA	1000 mA	2000 mA	-40 ~ +70 ºC	15,5 mm	27,0 mm	13,0 g
CR123ASL	3 V	1500 mAh	1,0 mA	1000 mA	3000 mA	-40 ~ +70 ºC	17,0 mm	34,5 mm	20,0 g
CR17285SL	3 V	1000 mAh	10,0 mA	800 mA	1500 mA	-40 ~ +70 ºC	17,0 mm	28,5 mm	16,0 g
CR17335SL	3 V	1500 mAh	1,0 mA	1000 mA	3000 mA	-40 ~ +70 ºC	17,0 mm	33,5 mm	20,0 g
CR17450SL	3 V	2200 mAh	1,0 mA	1500 mA	3500 mA	-40 ~ +70 ºC	17,0 mm	45,0 mm	26,0 g
CR17505SL	3 V	2500 mAh	10,0 mA	1500 mA	3500 mA	-40 ~ +70 ºC	17,0 mm	50,5 mm	30,0 g
CR18505SL	3 V	2800 mAh	1,0 mA	2000 mA	3000 mA	-40 ~ +70 ºC	18,0 mm	50,5 mm	35,0 g
CR20505SL	3 V	2800 mAh	10,0 mA	2000 mA	3000 mA	-40 ~ +70 ºC	20,0 mm	50,0 mm	35,0 g
CR26500SL	3 V	5000 mAh	10,0 mA	2000 mA	3000 mA	-40 ~ +70 ºC	26,0 mm	50,0 mm	62,0 g
CR26600SL	3 V	6000 mAh	10,0 mA	1500 mA	3000 mA	-40 ~ +70 ºC	26,0 mm	60,0 mm	78,0 g
CR34615SL	3 V	10000 mAh	10,0 mA	2000 mA	3000 mA	-40 ~ +70 ºC	34,0 mm	61,5 mm	125,0 g
2CR5SL	6 V	1500 mAh	1,0 mA	1500 mA	3500 mA	-40 ~ +70 ºC	34,0 x 17,0 x 45,0 mm		43,0 g
CRP2SL	6 V	1500 mAh	1,0 mA	1500 mA	3500 mA	-40 ~ +70 ºC	35,8 x 19,5 x 34,8 mm		42,0 g

Terminales para pilas cilíndricas

Todos los modelos de pilas cilíndricas de litio pueden ser suministradas con las diferentes clases de terminales que les mostramos a continuación. Para hacer referencia a la clase de terminal que necesita basta con añadir el sufijo que se muestra a la referencia de la pila.

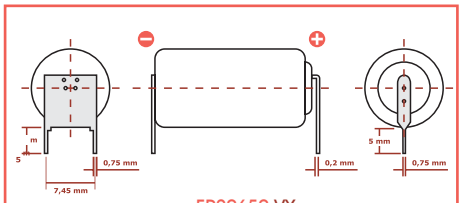
Terminals for cylindrical lithium batteries

All these models of primary lithium batteries could be supplied with different terminals. To specify a type of terminal it can be added the following suffix to the battery part number.



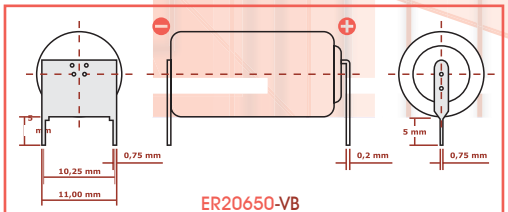
ER20650-LD

Con cable — With wire



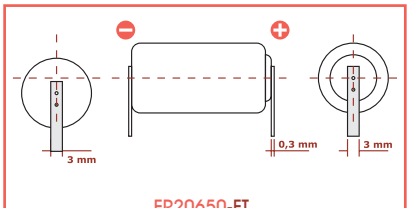
ER20650-VX

Pin — Pin



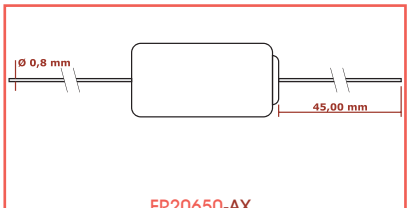
ER20650-VB

Pin — Pin



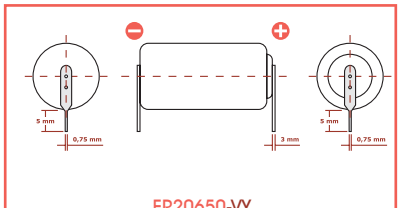
ER20650-FT

Pin — Pin



ER20650-AX

Pin axial — Axial pin



ER20650-VY

Pin — Pin

Pilas Soft bag

Soft bag cells

FANSO BATTERY is always specializing in research and development of primary lithium cells. Years of experience in researching and manufacturing give FANSO a leading place in this field. Rapid developments of RFID, wireless transmission, remote sensing and other cooperating with well-known end users developed a more suitable range for RFID and others 3.0V Li-MnO2 Soft pack cells.

As 3.0V Li-MnO2 Soft Pack Cells developed by FANSO battery are ultra thin, flexible in size, of high power densities, thewy are widely applied for RFID, electronic identifier smart card, container terminal, etc.

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REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA CORRIENTE MAX. CONTINUA MAX. DISCHARGE CURRENT CONTINOUS	VOLTAJE FINAL END VOLTAGE	GOSOR THICKNESS	ANCHO WIDTH	LARGO LENGTH	PESO WEIGHT
CP042629	3,0 V	14 mAh / 0.3 mA	7 mA	1.8 V	0,45 mm	26,0 mm	29,0 mm	0,4 g
CP044923	3,0 V	25 mAh / 0.5 mA	12 mA	1.8 V	0,45 mm	23,0 mm	49,0 mm	0,6 g
CP073040	3,0 V	50 mAh / 0.03 mA	1 mA	1.8 V	0,90 mm	31,0 mm	40,5 mm	1,2 g
CP502025	3,0 V	400 mAh / 1.0 mA	30 mA	1.8 V	5,20 mm	20,5 mm	25,5 mm	4,0 g
CP204440	3,0 V	500 mAh / 1.0 mA	45 mA	1.8 V	2,20 mm	44,5 mm	40,5 mm	4,3 g
CP502425	3,0 V	550 mAh / 1.0 mA	40 mA	1.8 V	5,20 mm	24,5 mm	25,5 mm	5,5 g
CP203047	3,0 V	650 mAh / 1.0 mA	200 mA	1.8 V	2,20 mm	35,5 mm	47,5 mm	5,0 g
CP224147	3,0 V	800 mAh / 1.0 mA	200 mA	1.8 V	2,20 mm	45,5 mm	48,3 mm	6,5 g
CP502440	3,0 V	1200 mAh / 1.0 mA	120 mA	1.8 V	5,20 mm	24,5 mm	40,5 mm	7,8 g
CP383047	3,0 V	1350 mAh / 5.0 mA	400 mA	1.8 V	4,00 mm	30,5 mm	47,5 mm	9,5 g
CP305050	3,0 V	1600 mAh / 5.0 mA	600 mA	1.8 V	3,20 mm	56,5 mm	50,5 mm	14,0 g
CP504644	3,0 V	2300 mAh / 5.0 mA	1000 mA	1.8 V	5,20 mm	46,5 mm	44,5 mm	17,0 g
CP505050	3,0 V	3000 mAh / 10 mA	1200 mA	1.8 V	5,20 mm	50,5 mm	50,5 mm	23,0 g

Li-MnO2 - Serie botón

Li-MnO2 - Button cell series

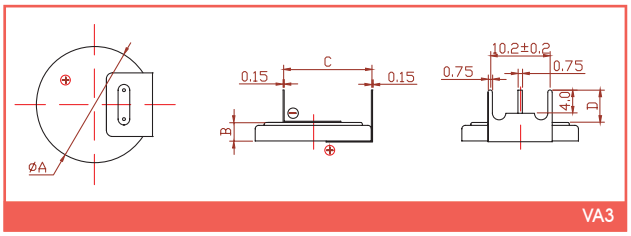
REFERENCIA PART NUMBER	VOLTAJE NOMINAL RATED VOLTAGE	CAPACIDAD NOMINAL RATED CAPACITY	DESCARGA ESTÁNDAR STANDARD DISCHARGE	DESCARGA CORRIENTE MAX. CONTINUA MAX. DISCHARGE CURRENT CONTINOUS	DESCARGA CORRIENTE MAX. PULSOS MAX. DISCHARGE CURRENT PULSE	DIÁMETRO DIAMETER	ALTURA HEIGHT	PESO WEIGHT
FU-PL-CR927	3,0 V	30,0 mAh	0,1 mA	0,5 mA	5,0 mA	9,5 mm	2,7 mm	0,6 g
FU-PL-CR1025	3,0 V	30,0 mAh	0,1 mA	0,5 mA	5,0 mA	10,0 mm	2,5 mm	0,6 g
FU-PL-CR1216	3,0 V	25,0 mAh	0,2 mA	1,0 mA	5,0 mA	12,5 mm	1,6 mm	0,7 g
FU-PL-CR1220	3,0 V	40,0 mAh	0,2 mA	1,0 mA	5,0 mA	12,5 mm	2 mm	0,8 g
FU-PL-CR1220	3,0 V	50,0 mAh	0,2 mA	1,0 mA	5,0 mA	12,5 mm	2,5 mm	1,0 g
FU-PL-CR1616	3,0 V	50,0 mAh	0,2 mA	2,0 mA	10,0 mA	16,0 mm	1,6 mm	1,2 g
FU-PL-CR1620	3,0 V	70,0 mAh	0,2 mA	2,0 mA	10,0 mA	16,0 mm	2,0 mm	1,3 g
FU-PL-CR1632	3,0 V	120,0 mAh	0,2 mA	2,0 mA	10,0 mA	16,0 mm	3,2 mm	1,6 g
FU-PL-CR2016	3,0 V	75,0 mAh	0.4 mA	2,0 mA	10,0 mA	20,0 mm	1,6 mm	1,6 g
FU-PL-CR2025	3,0 V	150,0 mAh	0.4 mA	3,0 mA	15,0 mA	20,0 mm	2,5 mm	2,4 g
FU-PL-CR2032	3,0 V	210,0 mAh	0.4 mA	3,0 mA	15,0 mA	20,0 mm	3,2 mm	3,1 g
FU-PL-CR2330	3,0 V	260,0 mAh	0.5 mA	3,0 mA	20,0 mA	23,0 mm	3,0 mm	4,0 g
FU-PL-CR2354	3,0 V	500v mAh	0.5 mA	3,0 mA	20,0 mA	23,0 mm	5,4 mm	5,7 g
FU-PL-CR2430	3,0 V	270,0 mAh	0.5 mA	3,0 mA	20,0 mA	24,5 mm	3,0 mm	4,3 g
FU-PL-CR2450	3,0 V	550,0 mAh	0.5 mA	3,0 mA	20,0 mA	24,5 mm	5,0 mm	6,2 g
FU-PL-CR2477	3,0 V	850,0 mAh	0,4 mA	2,0 mA	10,0 mA	24,5 mm	7,7 mm	8,2 g
FU-PL-CR2477T	3,0 V	1000,0 mAh	1,0 mA	5,0 mA	30,0 mA	24,5 mm	7,7 mm	10,0 g
FU-PL-CR3032	3,0 V	450,0 mAh	0,4 mA	5,0 mA	25,0 mA	30,0 mm	3,2 mm	6,8 g

Terminales para pilas de botón

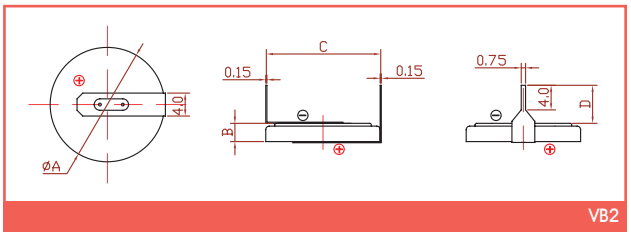
Todos los modelos de pilas de botón de litio pueden ser suministradas con las diferentes clases de terminales que les mostramos a continuación. Para hacer referencia a la clase de terminal que necesita basta con añadir el sufijo que se muestra a la referencia de la pila.

Terminals for button cell lithium batteries

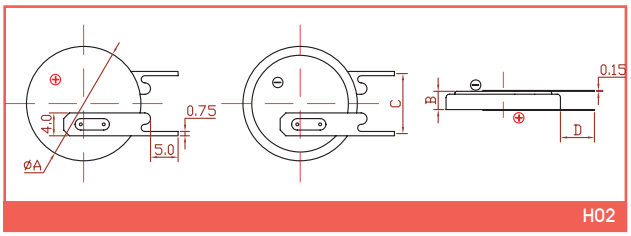
All these models of button cell lithium batteries could be supplied with different terminals. To specify a type of terminal it can be added the following suffix to the battery part number.



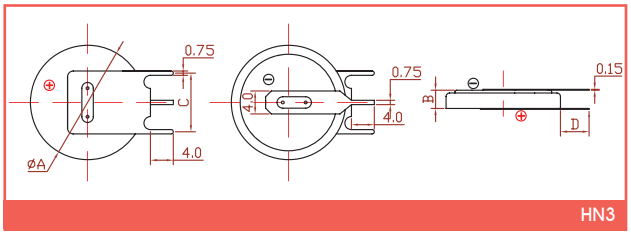
VA3



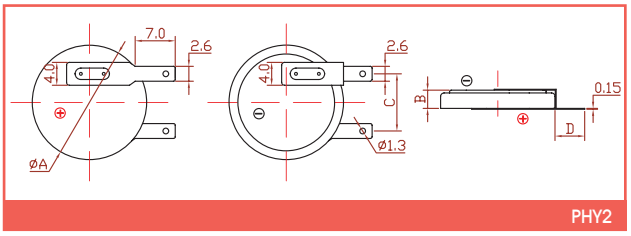
VB2



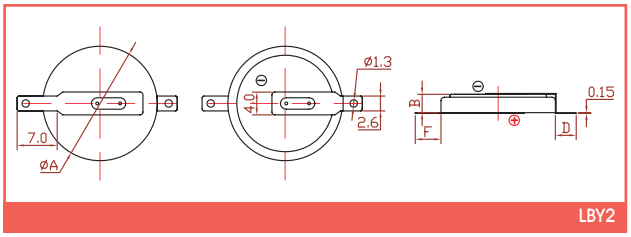
H02



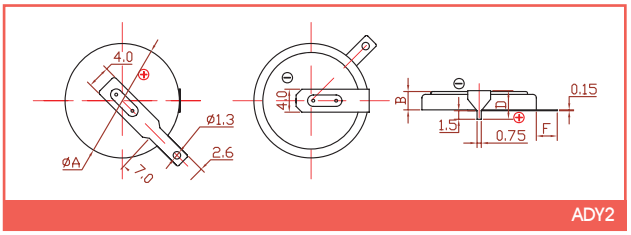
HN3



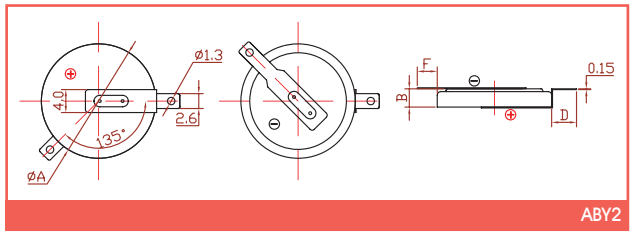
PHY2



LBY2



ADY2



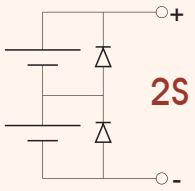
ABY2

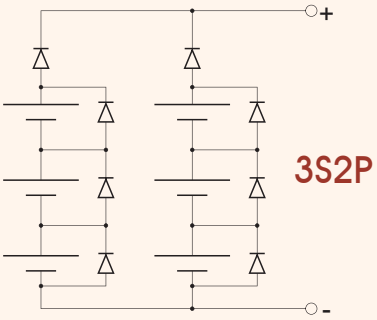
Packs de pilas de Litio

Lithium primary battery packs

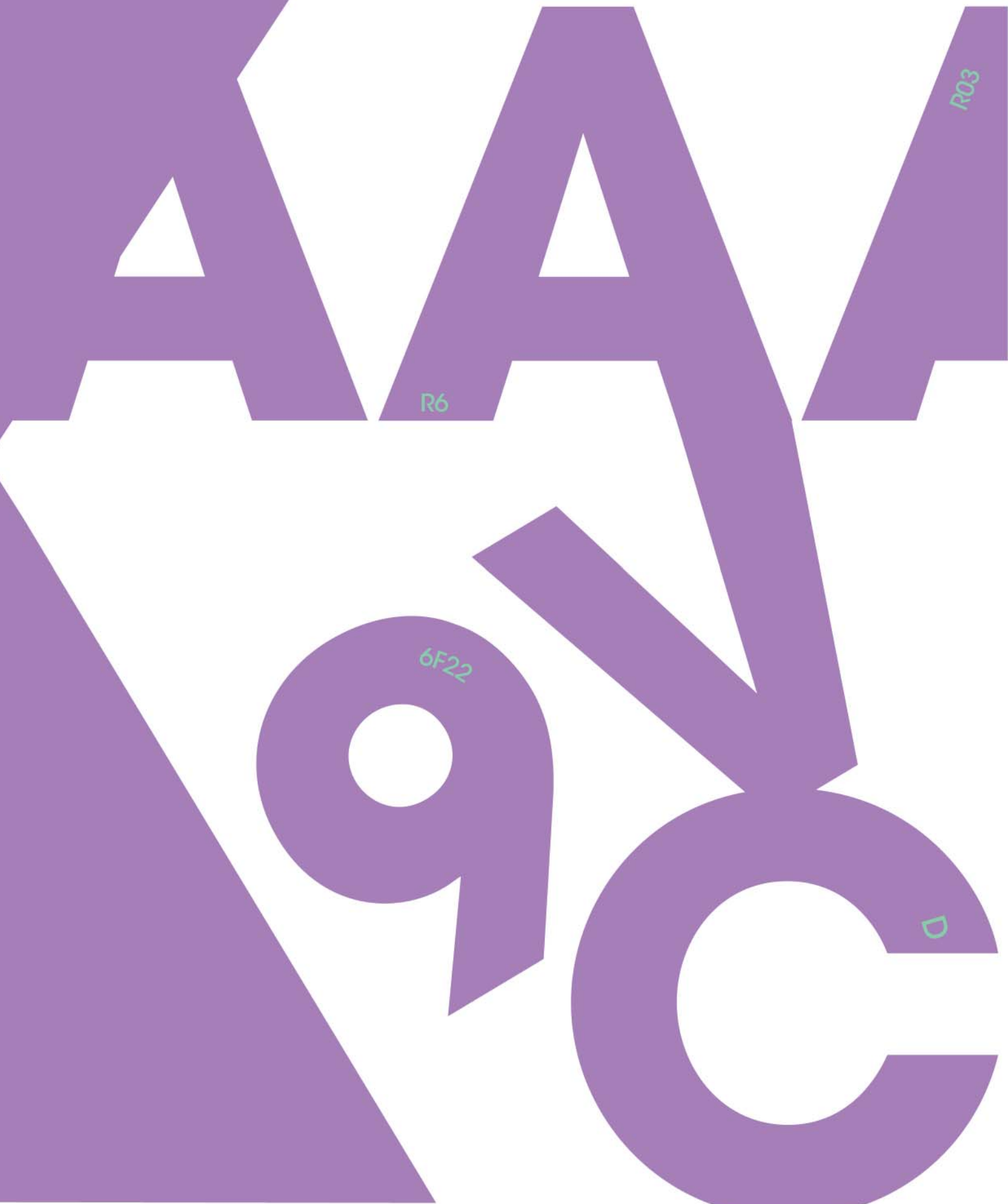
Las pilas de litio tienen un voltaje de 3,0V o de 3,6V según la tecnología. Mediante la asociación de pilas en serie o paralelo se puede aumentar el voltaje o la capacidad del pack. En la figura “2S” se ve cómo se asocian dos baterías, o cualquier número de ellas, en serie. Es imprescindible colocar un diodo inversamente polarizado en las pilas para evitar que la corriente atraviese una pila en sentido contrario ya que este tipo de pilas no admiten ningún tipo de corriente inversa.
Esta situación es factible que ocurra cuando se asocian en paralelo. A diferencia de las baterías, no es posible conocer la capacidad real de cada pila por lo que la que menos capacidad tenga será la primera en descargarse por completo y las pilas que tenga asociadas en paralelo intentarían cargarla, provocando su ruptura.
En la figura “3S2P” se pueden ver dos bloques de 3 pilas en serie que se han unido posteriormente a través de un diodo en cada bloque. Con este sistema es posible hacer gandes asociaciones de pilas en paralelo para conseguir capacidades gandes. El diodo impide que un bloque se descargue a través de otro ramal. El pack resultante se puede terminar con diversos modelos de conectores.

Lithium primary batteries have both voltages 3.0V or 3.6V depending on the chemistry. Associating primary batteries in series or parallel is possible in order to increase voltage or capacity of the pack. In figure “2S” is depicted two batteries associated in series, as it can be with any number. It is necessary to place a reversed biased diode to prevent current flow in reverse direction through a battery, as this type of battery cannot admit any current reverse current.
This scenario can occur when they are in parallel association. Unlike rechargable batteries, it is not possible to know the real charge of each battery. Therefore, the battery with the lowest capacity will be the first completely discharged and the other parallel batteries will try to charge it, causing its destruction.
In figure 3S2P is depicted two sets of batteries connected in series. These two sets have been connected through a diode on each set. With this system is possible to make large associations of batteries in parallel to get large capacities. The diode prevents a set being discharged through another set.
The final pack can be finished with various models of connectors.





PORTAPILAS
BATTERY HOLDERS



Identifique su portapilas

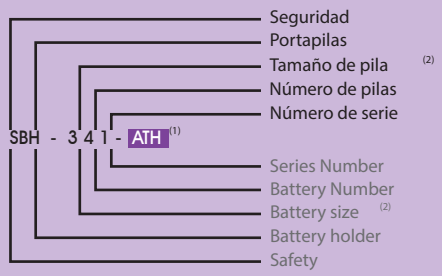
El método que debe seguir para indentificar la referencia del portapilas que usted necesita en este catálogo es el siguiente.

(1) Conexiones

A.- Con cables de 150 mm
B.- Con 4PRONG o 6PRONG SNAP TERMINAL
D.- Con Terminal para Soldar
H.- Con Carcasa
P.- Con pines (PCB)
S.- Con Switch
T.- Con Terminal

(2) Tamaño de las pilas

1.- Tamaño D / R20 / UM1
2.- Tamaño C / R14 / UM2
3.- Tamaño AA / R6 / UM3
4.- Tamaño AAA / R03 / UM4
5.- Tamaño N / R01 / UM5



Check your battery holder

Battery holder ordering part number is as shown below.

(1) Connections

A.- With Lead Wires 150 mm
B.- With 4PRONG or 6PRONG SNAP TERMINAL
D.- With Tag Terminal
H.- With Housing
P.- With Pin (PC Mounting)
S.- With Switch
T.- With Terminal

(2) Battery Size

1.- D / R20 / UM1 Size
2.- C / R14 / UM2 Size
3.- AA / R6 / UM3 Size
4.- AAA / R03 / UM4 Size
5.- N / R01 / UM5 Size

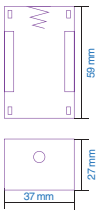
Portapilas

Battery holders

Tamaño D/R20/UM1

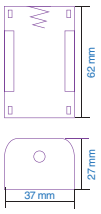
D/R20/UM1 Size

BH111A BH111D



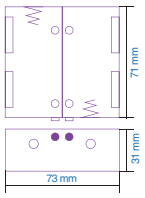
1 pila tamaño R20
1 battery D size

BH111-1A BH111D



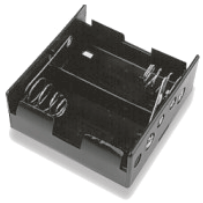
1 pila tamaño R20
1 battery D size

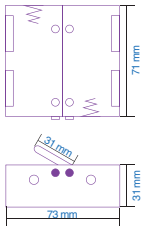
BH121-1A BH121-1B BH121-1D



2 pilas tamaño R20
2 batteries D size

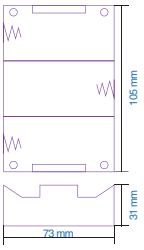
BH121-1AS BH121-1P BH121-1DS





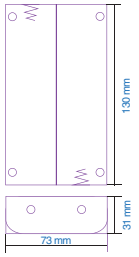
2 pilas tamaño R20
2 batteries D size

BH133-1A BH133-1D



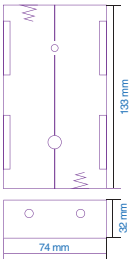
3 pilas tamaño R20
3 batteries D size

BH141A BH141D



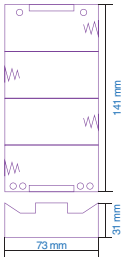
4 pilas tamaño R20
4 batteries D size

BH142A BH142B BH142D



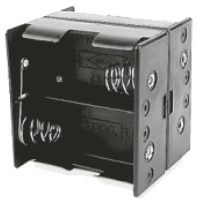
4 pilas tamaño R20
4 batteries D size

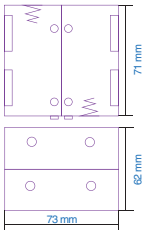
BH143-1A BH143-1D



4 pilas tamaño R20
4 batteries D size

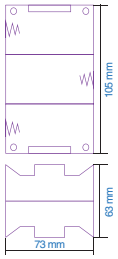
BH144-1A





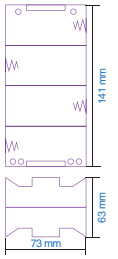
4 pilas tamaño R20
4 batteries D size

BH161-1A BH161-1D



6 pilas tamaño R20
6 batteries D size

BH181-1A BH181-1D



8 pilas tamaño R20
8 batteries D size

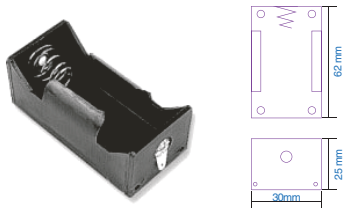
Portapilas

Battery holders

Tamaño C / R14 / UM2

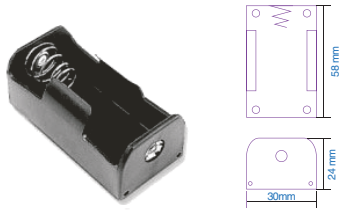
C / R14 / UM2 Size

BH211A BH211D



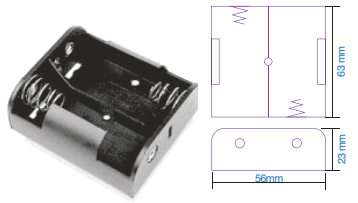
1 pila tamaño R14
1 battery C size

BH211-1A BH211-1D



1 pila tamaño R14
1 battery C size

BH221A BH221B BH221D

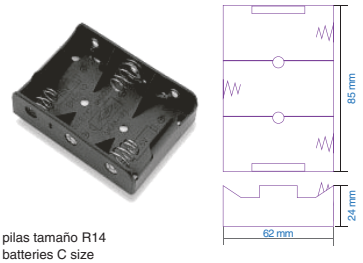


2 pilas tamaño R14
2 batteries C size

BH231A BH231D BH231P

3 pilas tamaño R14
3 batteries C size

BH232A BH232B BH232D

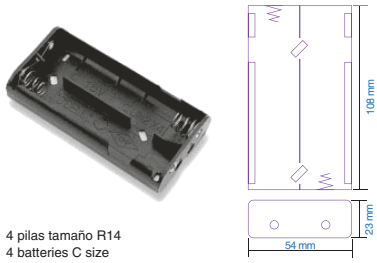


3 pilas tamaño R14
3 batteries C size

BH241A BH241D

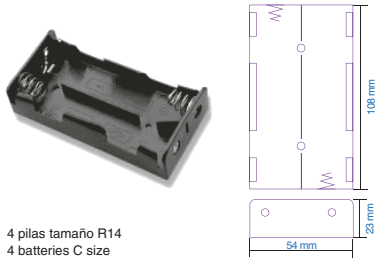
4 pilas tamaño R14
4 batteries C size

BH242A BH242B BH242D



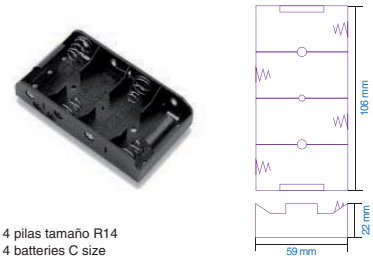
4 pilas tamaño R14
4 batteries C size

BH242-1A BH242-1B BH242-1D



4 pilas tamaño R14
4 batteries C size

BH243A BH243B BH243D

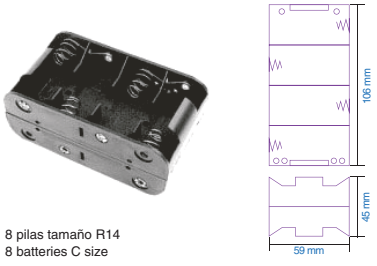


4 pilas tamaño R14
4 batteries C size

BH261A BH261B BH261D

6 pilas tamaño R14
6 batteries C size

BH281A BH281B BH281D



8 pilas tamaño R14
8 batteries C size

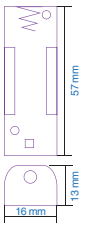
Portapilas

Battery holders

Tamaño AA / R6 / UM3

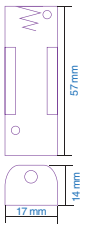
AA / R6 / UM3 Size

BH311A BH311D BH311P



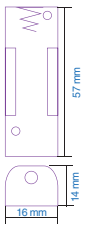
1 pila tamaño R6
1 battery AA size

BH311-1A BH311-1D BH311-1P



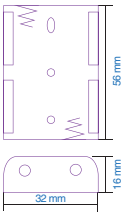
1 pila tamaño R6
1 battery AA size

BH311-2A BH311-2D BH311-2P



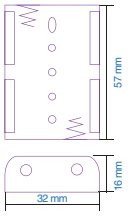
1 pila tamaño R6
1 battery AA size

BH321A BH321B BH321AS BH321P



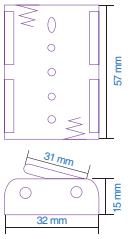
2 pilas tamaño R6
2 batteries AA size

BH321-1A BH321-1B BH321-1D



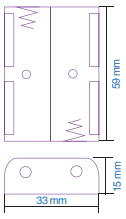
2 pilas tamaño R6
2 batteries AA size

BH321-1AS BH321-1P



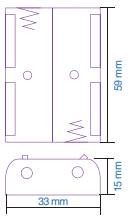
2 pilas tamaño R6
2 batteries AA size

BH321-2A BH321-2D



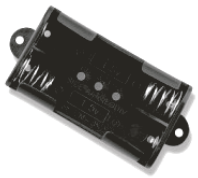
2 pilas tamaño R6
2 batteries AA size

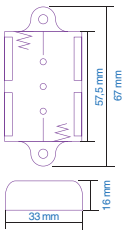
BH321-2AS BH321-2P



2 pilas tamaño R6
2 batteries AA size

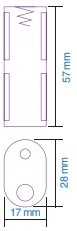
BH321-3A BH321-3D BH321-3P BH321-4A BH321-4D BH321-4P





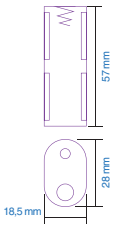
2 pilas tamaño R6
2 batteries AA size

BH322A BH322B BH322D



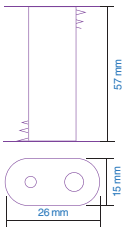
2 pilas tamaño R6
2 batteries AA size

BH322-1A BH322-1B BH322-1D



2 pilas tamaño R6
2 batteries AA size

BH324A BH324D



2 pilas tamaño R6
2 batteries AA size

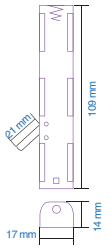
Portapilas

Battery holders

Tamaño AA / R6 / UM3

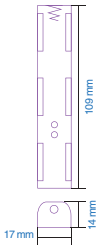
AA / R6 / UM3 Size

BH325A BH325AS



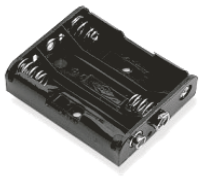
2 pilas tamaño R6
2 batteries AA size

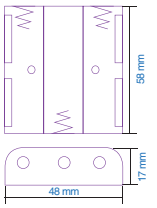
BH325-1A BH325-1AS



2 pilas tamaño R6
2 batteries AA size

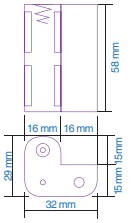
BH331A BH331B BH331D BH331P





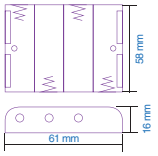
3 pilas tamaño R6
3 batteries AA size

BH332A



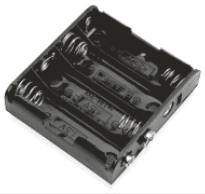
3 pilas tamaño R6
3 batteries AA size

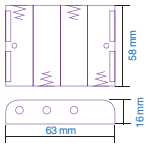
BH341A BH341B BH341D



4 pilas tamaño R6
4 batteries AA size

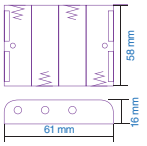
BH341-1A BH341-1B BH341-1D





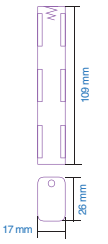
4 pilas tamaño R6
4 batteries AA size

BH341-2A BH341-2B BH341-2D



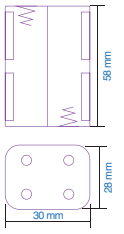
4 pilas tamaño R6
4 batteries AA size

BH342A BH342B BH342D



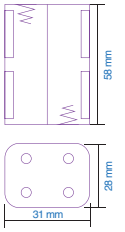
4 pilas tamaño R6
4 batteries AA size

BH343A BH343B BH343D



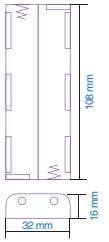
4 pilas tamaño R6
4 batteries AA size

BH343-1A BH343-1B BH343-1D



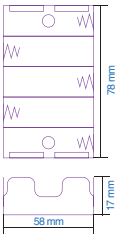
4 pilas tamaño R6
4 batteries AA size

BH344A BH344B BH344D BH344P



4 pilas tamaño R6
4 batteries AA size

BH351A BH351B BH351D



5 pilas tamaño R6
5 batteries AA size

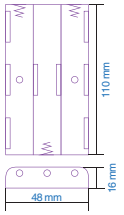
Portapilas

Battery holders

Tamaño AA / R6 / UM3

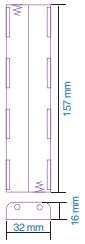
AA / R6 / UM3 Size

BH361A BH361B BH361D



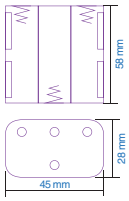
6 pilas tamaño R6
6 batteries AA size

BH362A BH362B BH362D BH362P



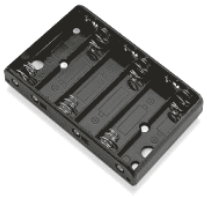
6 pilas tamaño R6
6 batteries AA size

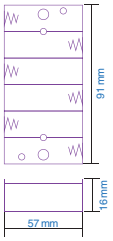
BH363A BH363B BH363D



6 pilas tamaño R6
6 batteries AA size

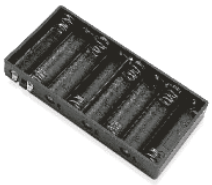
BH364A BH364D

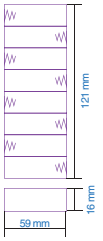




6 pilas tamaño R6
6 batteries AA size

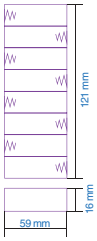
BH381A BH381B BH381D





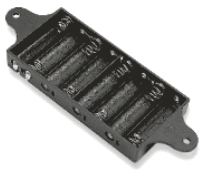
8 pilas tamaño R6
8 batteries AA size

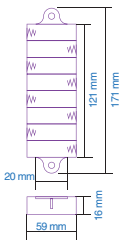
BH363A BH363B BH363D



8 pilas tamaño R6
8 batteries AA size

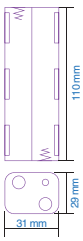
BH381-2A BH381-2B BH381-2D





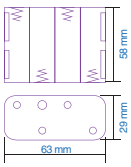
8 pilas tamaño R6
8 batteries AA size

BH382A BH382B BH382D



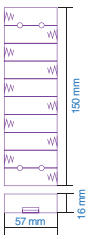
8 pilas tamaño R6
8 batteries AA size

BH383A BH383B BH383D



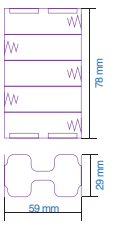
8 pilas tamaño R6
8 batteries AA size

BH3101A BH3101D



10 pilas tamaño R6
10 batteries AA size

BH3103-1A BH3103-1B BH3103-1D



10 pilas tamaño R6
10 batteries AA size

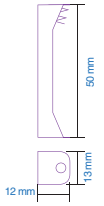
Portapilas

Battery holders

Tamaño AAA / R03 / UM4

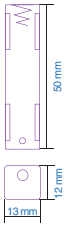
AAA / R03 / UM4 Size

BH411A BH411D BH411P



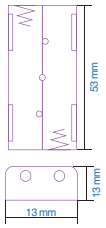
1 pila tamaño R03
1 battery AAA size

BH411-1A BH411-1D BH411-1P



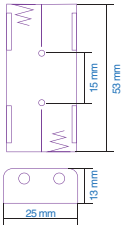
1 pila tamaño R03
1 battery AAA size

BH421A BH421B BH421D BH421P



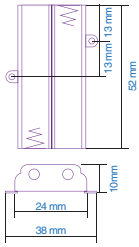
2 pilas tamaño R03
2 batteries AAA size

BH421-1A BH421-1B BH421-1D BH421-1P



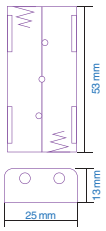
2 pilas tamaño R03
2 batteries AAA size

BH421-2A BH421-2D



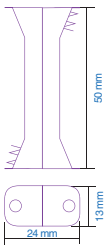
2 pilas tamaño R03
2 batteries AAA size

BH421-3A BH421-3B BH421-3D BH421-3P



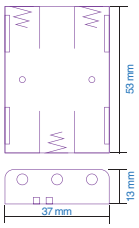
2 pilas tamaño R03
2 batteries AAA size

BH422A BH422D



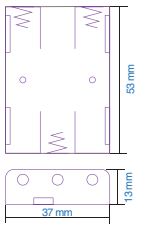
2 pilas tamaño R03
2 batteries AAA size

BH431A BH431B BH431D BH431P



3 pilas tamaño R03
3 batteries AAA size

BH431-1A BH431-1B BH431-1D BH431-1P



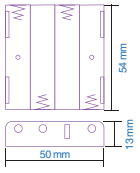
3 pilas tamaño R03
3 batteries AAA size

BH432

3 pilas tamaño R03
3 batteries AAA size

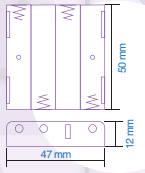
ø 20 x 51 mm

BH441A BH441B BH441D BH441P



4 pilas tamaño R03
4 batteries AAA size

BH441-1A BH441-1B BH441-1D BH441-1P



4 pilas tamaño R03
4 batteries AAA size

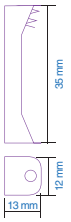
Portapilas

Battery holders

Tamaño N / R01 / UM5

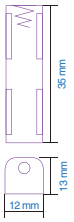
N / R01 / UM5 Size

BH511A BH511D BH511P



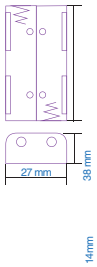
1 pila tamaño R01
1 battery N size

BH511-1A BH511-1D BH511-1P



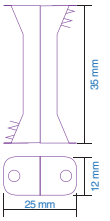
1 pila tamaño R01
1 battery N size

BH521A BH521D BH521P



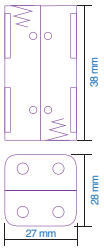
2 pilas tamaño R01
2 batteries N size

BH522A BH522D



2 pilas tamaño R01
2 batteries N size

BH543A BH543D

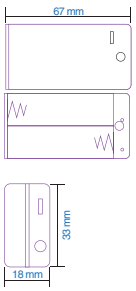


4 pilas tamaño R01
4 batteries N size

Portapilas de seguridad

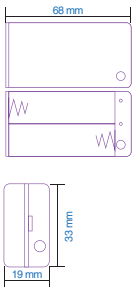
Safety Battery holders

SBH-321A



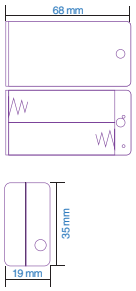
2 pilas tamaño R6
2 batteries AA size

SBH-321-1A SBH-321-1AS



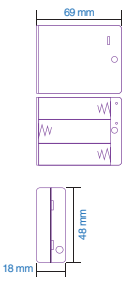
2 pilas tamaño R6
2 batteries AA size

SBH-321-2A



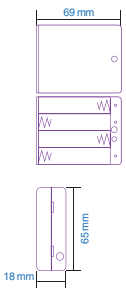
2 pilas tamaño R6
2 batteries AA size

SBH-321-3A SBH-321-3AS



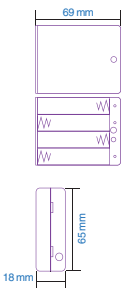
3 pilas tamaño R6
3 batteries AA size

SBH-331A SBH-331AS



4 pilas tamaño R6
4 batteries AA size

SBH-341A SBH-341AS



4 pilas tamaño R6
4 batteries AA size

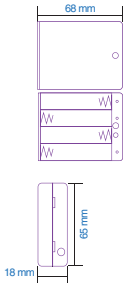
Portapilas

Battery holders

Portapilas de seguridad

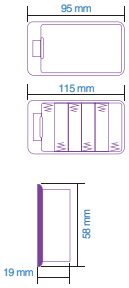
Safety Battery holders

SBH-341-1A SBH-341-1AS



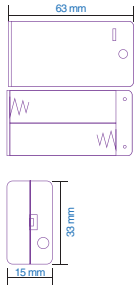
4 pilas tamaño R6
4 batteries AA size

SBH-361A SBH-361B



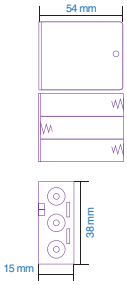
6 pilas tamaño R6
6 batteries AA size

SBH-421A SBH-421AS



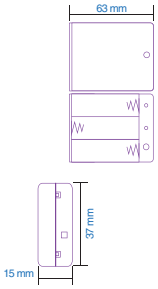
2 pilas tamaño R03
2 batteries AAA size

SBH-431A SBH-431B



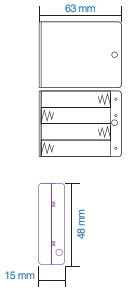
3 pilas tamaño R03
3 batteries AAA size

SBH-431-1A SBH-431-1AS



3 pilas tamaño R03
3 batteries AAA size

SBH-441A SBH-441AS

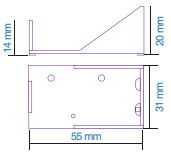


4 pilas tamaño R03
4 batteries AAA size

Otros portapilas y clips

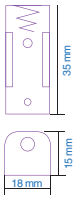
Others battery holders & clips

BH9VA BH9VD BH9VP



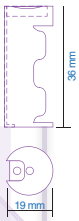
1 pila tamaño 6F22
1 battery 6F22 size

1/2AA-2P



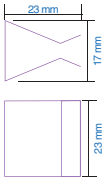
1 pila tamaño1/2R6
1 battery1/2AA size

1/2AA-3S

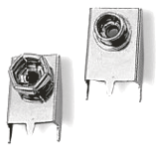


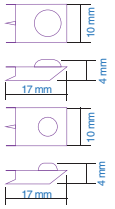
1 pila tamaño 1/2R6
1 battery 1/2AA size

BH980



SNAP ON





6F22 Clip

Modelos disponibles:
- Modelo para soldar
- PVC vinilo
- Rígido

Available models
- Soldering model
- PVC vinyl
- Rígid

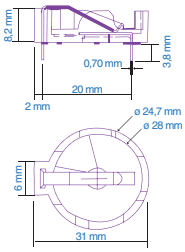
Portapilas

Battery holders

Zócalos para pilas de botón de litio

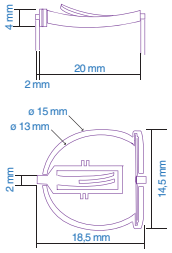
Battery holders for lithium button cell

BH1001



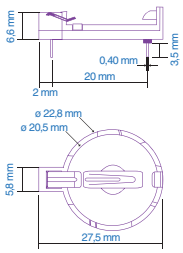
- Para modelos/ for models:
  2430
  2450

BH500



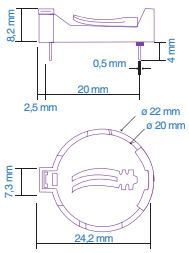
- Para modelos/ for models:
  1220
  1216
  1225

BH810



- Para modelos/ for models:
  2016
  2025
  2032

BH820



- Para modelos/ for models:
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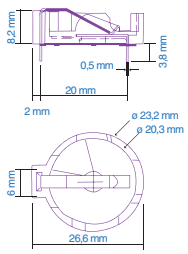
  2025
  2032

BH800



- Para modelos/ for models:
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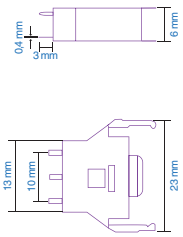
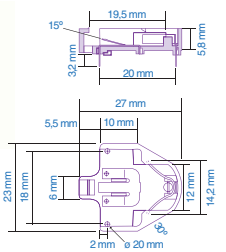
  2025
  2032

CH74-2032LF



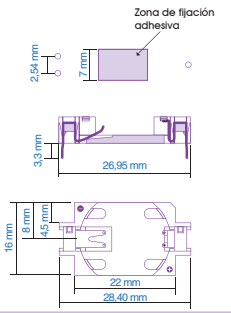
- Para modelos/ for models:
  2032

GS026



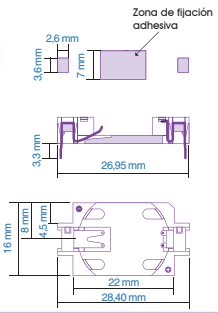
- Para modelos/ for models:
  2032

GS029



- Para modelos/ for models:
  2032

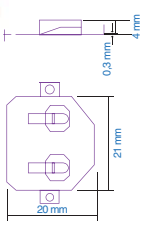
GS028L



SMD

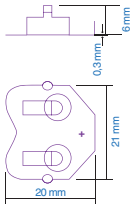
- Para modelos/ for models:
  2032

BC2001



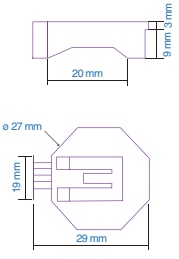
- Para modelos/ for models:
  2032

BC2002



- Para modelos/ for models:
  2032

CH273-2450



- Para modelos/ for models:
  CR2450

Utilidades

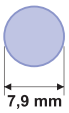
Utilities

Células disponibles
Compruebe el tamaño de sus baterías

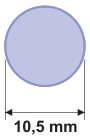
Available cells
Check out your battery size

TAMAÑO SIZE	MODELOS MODEL	ALTURA HEIGHT
AAAA ø7,9 mm	AAAA	41,5 ±0,5 mm
AAA ø10,5 mm	1/3 AAA	15,8 ±0,5 mm
	1/2 AAA	25,0 ±0,5 mm
	2/3 AAA	27,8 ±0,5 mm
	AAA	43,6 ±0,5 mm
	5/4 AAA	49,5 ±0,5 mm
	7/5 AAA	66,5 ±0,5 mm
	5/3 AAA	67,0 ±0,5 mm
N ø12,0 mm	N	29,3 ±0,5 mm
AA ø14,5 mm	1/3 AA	17,0 ±0,5 mm
	2/3 AA	30,3 ±0,5 mm
	4/5 AA	42,6 ±0,5 mm
	AA	48,0 ±0,5 mm
	7/5 AA	64,4 ±0,5 mm
A ø17,0 mm	1/3 A	16,8 ±0,5 mm
	2/5 A	21,5 ±0,5 mm
	1/2 A	28,0 ±0,5 mm
	2/3 A	32,9 ±0,5 mm
	4/5 A	42,1 ±0,5 mm
	A	49,0 ±0,5 mm
	7/5 A	67,0 ±0,5 mm
SC ø22,9 mm	1/2 SC	25,5 ±0,5 mm
	2/3 SC	26,7 ±0,5 mm
	4/5 SC	32,5 ±0,5 mm
	SC	42,0 ±0,5 mm
	5/4 SC	49,0 ±0,5 mm
C ø25,3 mm	1/3 C	19,1 ±0,5 mm
	C	49,0±0,5 mm
D y F ø33,0 mm	1/2 D	35,0 ±0,5 mm
	D	60,5±0,5 mm
	F	91,0±0,5 mm
M ø43,1 mm	M	91,0 ±0,5 mm
	5/3 M	146,1±0,5 mm

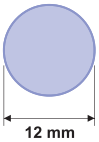
Tamaño AAAA
AAAA Size



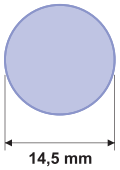
Tamaño AAA
AAA Size



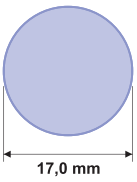
Tamaño N
N Size



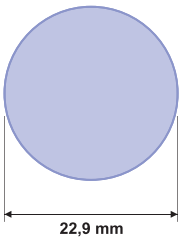
Tamaño AA
AA Size



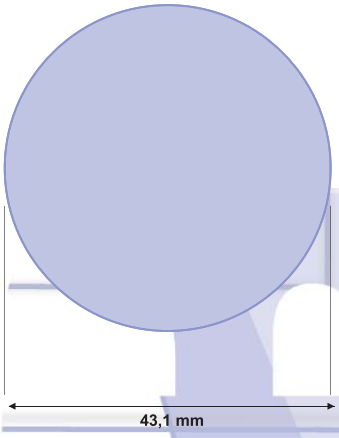
Tamaño A
A Size



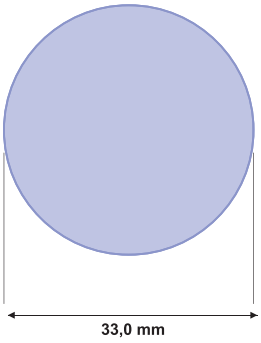
Tamaño SC
SC Size



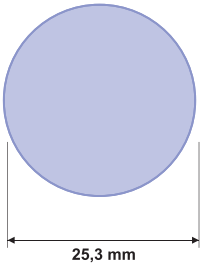
Tamaño M
M Size



Tamaño D y F
D y F Size

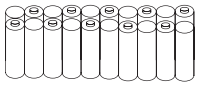
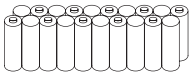
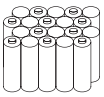
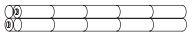
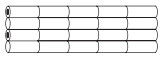
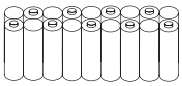
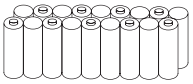
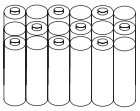
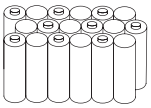
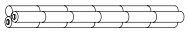
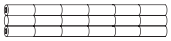
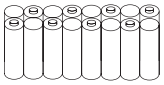
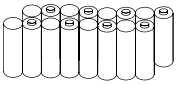
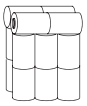
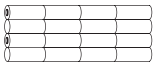
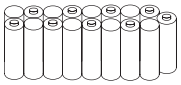
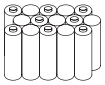
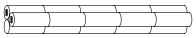
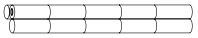


Tamaño C
C Size



Configuraciones básicas de baterías cilíndricas

Basic settings for cylindrical batteries

Volts	Unid	A	B	C	D	E	F
24	20						
21,6	18						
19,2	16						
18	15						
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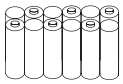
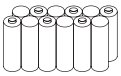
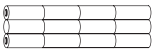
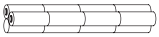
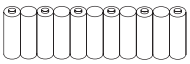
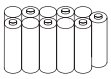
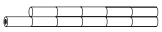
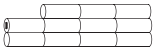
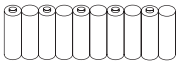
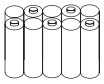
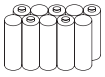
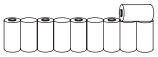
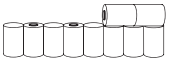
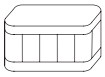
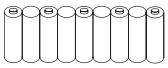
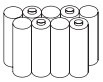
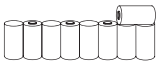
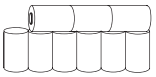
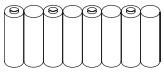
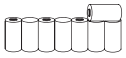
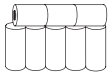
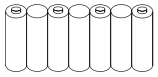
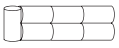
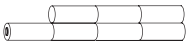
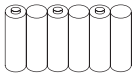
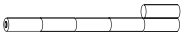
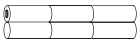
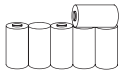
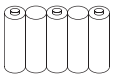
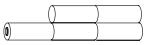
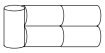
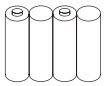
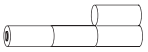
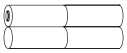
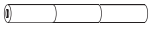
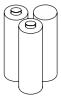
14,4	12						
13,2	11						
12	10						

Configuraciones básicas de baterías cilíndricas

Basic settings for cylindrical batteries

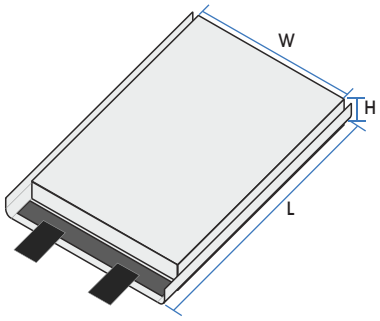
Volts	Unid	A	B	C	D	E	F
10,8	9						
9,6	8						
8,4	7						
7,2	6						
6	5						
4,8	4						
3,6	3						
2,4	2						

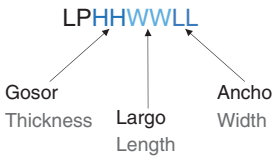
Cálculo de capacidad de baterías Li-Po

Aunque no es absolutamente preciso, es posbile calcular la capacidad de una batería prismática de Li-Po en función de sus dimensiones, algo especialmente útil en la fase de diseño que ayude a evitar que se reserve un espacio insuficiente o demasiado gande en relación a la capacidad necesaria.

Calculation of Li-PO battery capacity

Although not absolutely accurate, it is possible to calculate the capacity of a prismatic Li-Po battery according to its size, which is especially useful in the design phase to avoid to reserve an insufficient or too much space in relation to the capacity needed.





LP623450
H= 62/10= 6,2 mm

LP623450
W= 34 mm

LP623450
L= 50 mm

Siguiendo con el ejemplo de la LP623450, la capacidad calculada es (6,2-1) x (34-1) x (50-5) x 0,136= 1050mAh

Following the example of LP623450, the calculated capacity is (6.2-1) x (34-1) x (50-5) x 0.136 = 1050mAh

Técnicas de protección

Protection technology

PCM

PCM

REFERENCIA / PART NUMBER	Nº BATERÍAS / BATTERIES PTY	GOSOR / THICKNESS	SEPARACIÓN TERMINALES / TERMINAL DISTANCE	LARGURA MAX. / MAX. LENGTH
FU-PCM2S-4017-1500	2S (7,4V)	4,0 mm	17,0 mm	1500,0 mA
FU-PCM2S-4024-2500	2S (7,4V)	4,0 mm	24,0 mm	2500,0 mA
FU-PCM2S-6017-2000	2S (7,4V)	6,0 mm	17,0 mm	2000,0 mA
FU-PCM2S-6024-4000	2S (7,4V)	6,0 mm	24,0 mm	4000,0 mA
FU-PCM2S-8017-3000	2S (7,4V)	8,0 mm	17,0 mm	3000,0 mA
FU-PCM2S-8024-5000	2S (7,4V)	8,0 mm	24,0 mm	5000,0 mA
FU-PCM2S-9717-4000	2S (7,4V)	9,7 mm	17,0 mm	4000,0 mA
FU-PCM2S-9724-6000	2S (7,4V)	9,7 mm	24,0 mm	6000,0 mA
FU-PCM3S-4017-1500	3S (11,1V)	4,0 mm	17,0 mm	1500,0 mA
FU-PCM3S-4024-2500	3S (11,1V)	4,0 mm	24,0 mm	2500,0 mA
FU-PCM3S-6017-2000	3S (11,1V)	6,0 mm	17,0 mm	2000,0 mA
FU-PCM3S-6024-4000	3S (11,1V)	6,0 mm	24,0 mm	4000,0 mA
FU-PCM3S-8017-3000	3S (11,1V)	8,0 mm	17,0 mm	3000,0 mA
FU-PCM3S-8024-4000	3S (11,1V)	8,0 mm	24,0 mm	4000,0 mA
FU-PCM3S-9717-4000	3S (11,1V)	9,7 mm	17,0 mm	4000,0 mA
FU-PCM3S-9724-6000	3S (11,1V)	9,7 mm	24,0 mm	6000,0 mA
FU-PCM4S-4017-1500	4S (14,8V)	4,0 mm	17,0 mm	1500,0 mA
FU-PCM4S-4024-2500	4S (14,8V)	4,0 mm	24,0 mm	2500,0 mA
FU-PCM4S-6017-2000	4S (14,8V)	6,0 mm	17,0 mm	2000,0 mA
FU-PCM4S-6024-4000	4S (14,8V)	6,0 mm	24,0 mm	4000,0 mA
FU-PCM4S-8017-3000	4S (14,8V)	8,0 mm	17,0 mm	3000,0 mA
FU-PCM4S-8024-4000	4S (14,8V)	8,0 mm	24,0 mm	4000,0 mA
FU-PCM4S-9717-4000	4S (14,8V)	9,7 mm	17,0 mm	4000,0 mA
FU-PCM4S-9724-6000	4S (14,8V)	9,7 mm	24,0 mm	6000,0 mA

Polyswitch

Polyswitch

REFERENCIA / PART NUMBER	IH	IT	V MAX	L MAX	R INIT MIN
SRP120	1,20 A	2,7 A	15,0 V	100,0 mm	0,085 ohm
SRP175	1,75 A	3,8 A	15,0 V	100,0 mm	0,050 ohm
SRP200	2,00 A	4,4 A	24,0 V	100,0 mm	0,030 ohm
SRP350	3,50 A	6,3 A	24,0 V	100,0 mm	0,017 ohm
SRP420	4,20 A	7,6 A	24,0 V	100, 0 mm	0,012 ohm

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