



Innovative ideas for fire protection, fire prevention and extinguishing systems



GENIUS GROUP

PyroBubbles®



The Genius Group

With an experienced research and development team we work on the best possible fire protection solutions for our customers every day. We have been developing innovative solutions for fire protection, transport & storage of lithium-ion batteries and special extinguishing systems since 2010. We work closely with the responsible institutes and associations.

For our customers, partners and employees, we want to harmonize ecology and economy and create an appropriate environment.

As a manufacturer and marketer of sustainable, innovative fire protection solutions, the Genius Group forms an important interface between research, science and industry.



PyroBubbles[®] Extinguishing and filling agents

Ideal filling agent for storage and transport of lithium ion batteries
(UN3480, UN3090)

Characteristics:

- approx. 8-10 times lighter than sand (approx. 235kg/m³)
- Absorption of electrolyte (BAM tested)
- Low thermal conductivity and electrically insulating
- Thermal and chemical resistance (<1050 ° C)
- Specific heat capacity of only 0.7 kJ/(kg*K), porosity of 85%
- Condensation of the escaping vapors on the surface of the *PyroBubbles*[®]
- Non-flammable building material (A1, DIN 4102, EN 13501)
- Protection against vibration through fixation
- Dust-free thanks to PE bags
- Storable, low maintenance costs and maintenance-free
- 100% ecological
- 100% available

SHORTLIST 2016

Produkt des Jahres
„Baulicher Brandschutz“

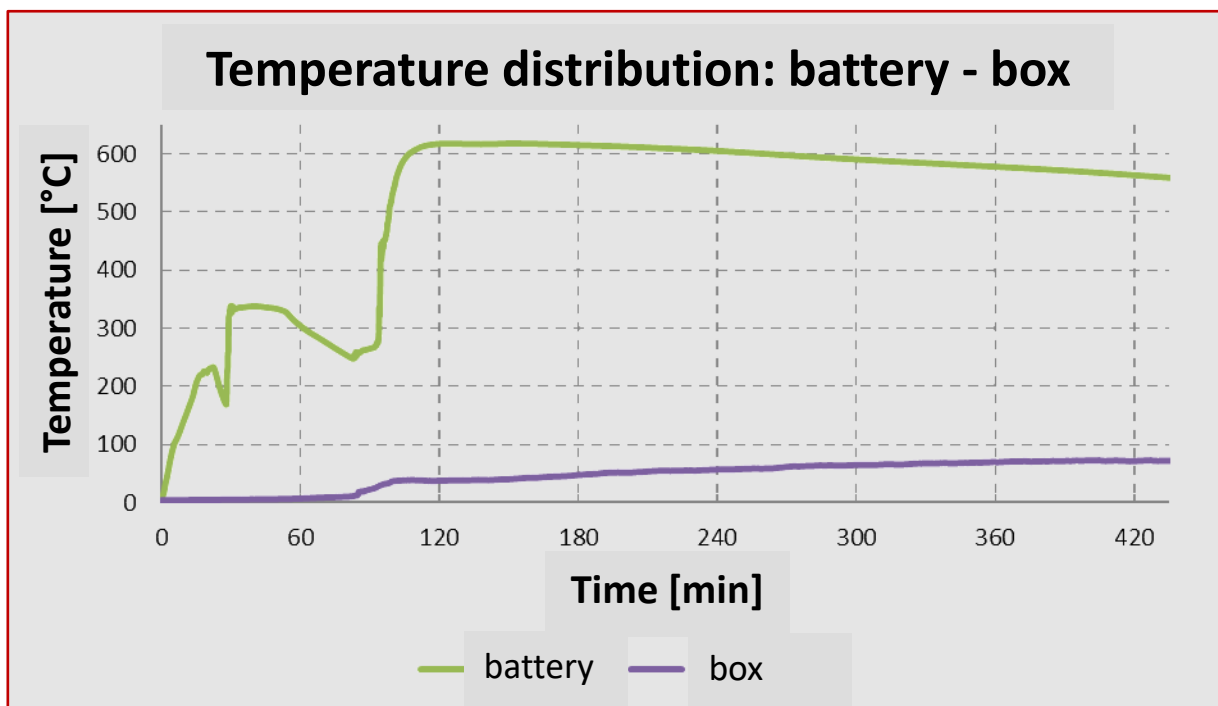
Eine Auszeichnung der
FeuerTRUTZ Network GmbH



Genius LioGuard transport box metal

- Packing group I
- Safety system for storage and transport in accordance with ADR SP376, P911/LP906 for critically defective lithium-ion batteries
- Safe protection during thermal runaway
- Steel boxes from S to XXL
- Tested boxes with UN approvals
- Permanent reuse of the system
- Easy to use

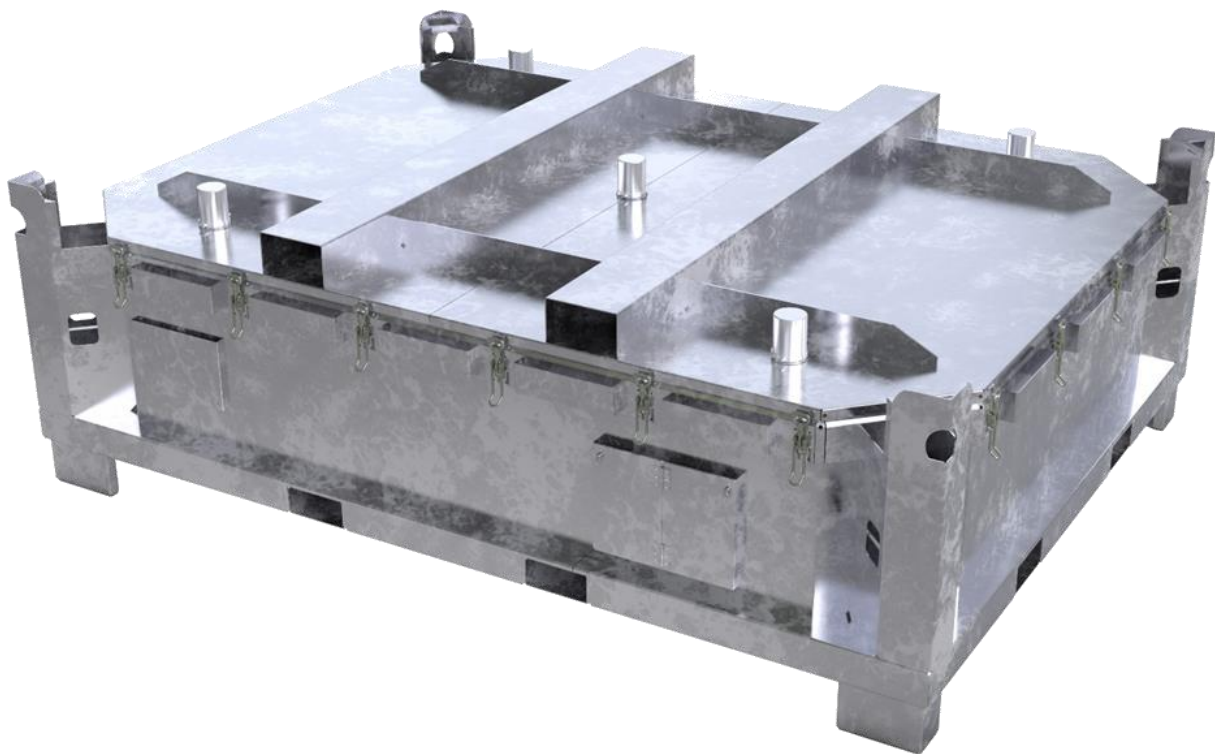
The temperatures of the outer walls remain well below 100°C, even during and after a thermal runaway of the battery.



*Example representation

Art.-No.	Description*	Outer dimensions (mm)	Inner dimensions (mm)	Max. size battery (mm)	Volume (l)	Max. gross mass (kg)	Max. dangerous goods mass (kg)
2101	S-Box X1	799 x 599 x 734	676 x 476 x 580	436 x 236 x 180	187	160	66
2102	S-Box X2	799 x 599 x 1114	676 x 476 x 960	436 x 236 x 560	309	240	110
2103	M-Box X1	1199 x 799 x 792	1076 x 676 x 640	776 x 376 x 240	466	350	155
2104	M-Box X2	1199 x 799 x 1252	1076 x 676 x 1100	776 x 376 x 700	800	630	360
2105	XXL-Box	2500 x 1484 x 1029	2376 x 1356 x 800	1976 x 956 x 400	2603	1212	400
2112	LP1-Box Classic (PB in PE bags)	2835 x 2135 x 957	2159 - 2699 x 1460 - 2000 x 570	2147 x 1447 x 170	2986	2024	842
2113	LP1-Box Basic (PB loose bulk)	2835 x 2135 x 957	2159 - 2699 x 1460 - 2000 x 570	2147 x 1447 x 170	2986	2024	842
2115	LP2-Box	3175 x 2400 x 1349	2670 x 1900 x 590	2270 x 1500 x 190	2993	3960	800

*incl. PyroBubbles



Genius LP1-Box

Genius LioGuard transport box metal



Genius M-Box X1



Genius S-Box X2



Genius M-Box X2



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Genius M-Box X1



Genius XXL-Box

Genius LioGuard transport box plastic

- Packaging Group II
- Safety system for storage and transport in accordance with ADR SP376, P908 for defective lithium-ion batteries
- Safety system for storage, transport and recycling in accordance with ADR SP377, P909 for non-defective or EOL lithium-ion batteries
- Transport of prototypes according to SP310, P910
- E-bike batteries, power tools, laptop and smartphone batteries, etc.
- Safe protection at Thermal Runaway
- Standard sizes for simple logistics
- Tested boxes with UN approvals
- Permanent reuse of the system
- Easy to use

Packaging methods

Basic



PyroBubbles in PE bags

Advanced (only for M-Box)



PyroBubbles as loose bulk, wire basket

Premium



PyroBubbles as loose bulk between box and closed basket, PE bags inside

Art.-No.	Description*	Outer dimensions (mm)	Inner Dimensions (mm)	Max. size battery (mm)	Volume (l)	Max. gross mass (kg)	Max. dangerous goods mass (kg)
2209	XS-Box 1 Basic	400 x 300 x 235	360 x 260 x 195	280 x 180 x 95	18	13	8,1
2213	XS-Box 1 Premium	400 x 300 x 235	298 x 191 x 125	278 x 171 x 55	7	13	4,9
2211	XS-Box 2 Basic	400 x 300 x 285	360 x 260 x 245	280 x 180 x 145	23	13	7,5
2201	S-Box 1 Basic	600 x 400 x 295	556 x 356 x 276	436 x 236 x 136	56	45	32,5
2203	S-Box 1 Premium	600 x 400 x 295	492 x 292 x 196	452 x 252 x 96	28	45	26,2
2204	S-Box 2 Basic	600 x 400 x 441	556 x 356 x 422	438 x 236 x 282	84	45	27,9
2206	S-Box 2 Premium	600 x 400 x 441	492 x 292 x 341	452 x 252 x 241	49	45	18,1
2207	M-Box Advanced	1230 x 1030 x 835	966 x 766 x 404	846 x 646 x 244	299	456	291,8
2208	M-Box Premium	1230 x 1030 x 835	981 x 788 x 400	901 x 708 x 260	309	456	277,9

*incl. PyroBubbles



Genius M-Box Advanced



Genius XS-Box

Genius Storage Box

The increasing energy density of lithium-ion batteries and the unstoppable use of these energy sources in all industrial sectors inevitably lead to significantly greater danger potentials (transport damage, self-ignition potential, production damage, etc.).

The Genius Group has developed an innovative and safe storage system in cooperation with one of the leading manufacturers of metal boxes in Europe.

The double-walled metal walls and the lid of the special containers are filled with *PyroBubbles®*.

Even batteries or cells in cartons or other storage units are quickly and easily stored in the containers and protected.

The Genius Storage Box system is a simple, weather-resistant, safe and flexible solution for storing lithium-ion batteries for all industrial sectors. Expensive separate fire protection containers and halls, as well as shelters, are thus superfluous.



Storage Box 90 with transport rolls (accessory)

Art.-No.	Description*	Outer dimensions (mm)	Inner dimensions (mm)
2306	Storage Box 30	605 x 400 x 800	363 x 213 x 395
2307	Storage Box 90	805 x 605 x 800	563 x 413 x 395
2308	Storage Box 220	1216 x 805 x 800	1013 x 563 x 395
2309	Storage Box 280	1216 x 1006 x 800	1013 x 743 x 373
2310	Storage Box 520	1682 x 1479 x 902	1247 x 1047 x 400

*incl. PyroBubbles

Genius Bengalo Safe Safety box

The Bengalo Safe consists of a specially designed safety box filled with *PyroBubbles*[®]. The Bengalo torch is picked up and pressed into the Bengalo Safe. The torch is suffocated by the extinguishing agent *PyroBubbles*[®]. All that remains is a securely packed burnt-out "Bengalo".

Uncontaminated PyroBubbles can be reused without any problems.

Advantages

- Easy-to-transport boxes
- Immediate insulation of the 2000°C hot torch
- Protection against burns and smoke
- Safe storage without risk of fire propagation and injury
- No risk of re-ignition
- Reusable and environmentally friendly
- Age resistant



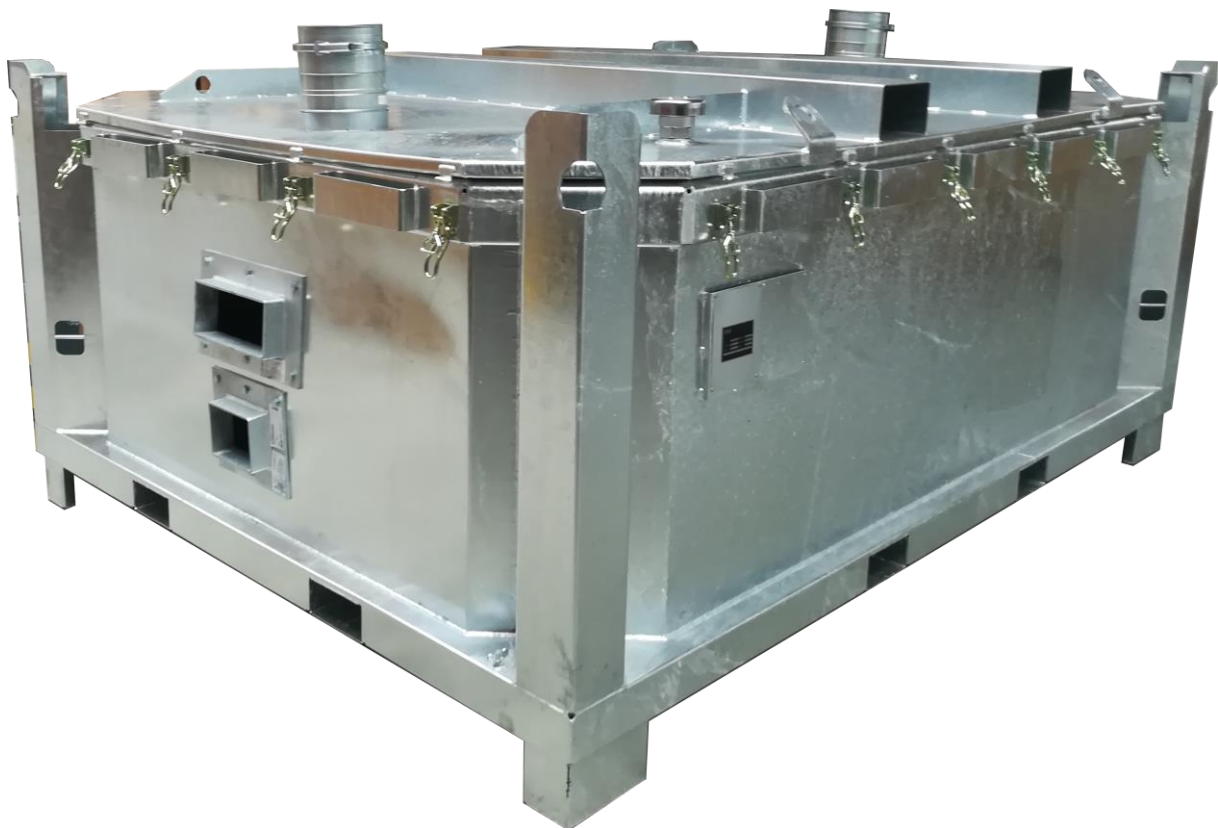
Genius Test Bench

The Genius Group offers test bench boxes for lithium-ion cells and batteries in addition to the other offered products. Many years of experience with real-fire tests of lithium-ion batteries of all sizes in the field of electromobility play a decisive role.

The tailor-made test bench boxes

are used for research and the determination of performance limits of the latest lithium-ion batteries from the electrical and automotive industries.

All boxes are made of steel. Individual cable ducts, smoke gas extracts and other connections defined at the customer's request are of course included.



Example image shows special equipment, Test Bench containers are offered individually on request

As references we may give, among others:

**BOSCH****ECOBAT**
BATTERY TECHNOLOGIES**KÜHNE+NAGEL****KUKA****MASERATI****PORSCHE****RIMAC****SAMSUNG****SCANIA**

[illegible]





SHORTLIST 2016

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„Baulicher Brandschutz“

Eine Auszeichnung der
FeuerTRUTZ Network GmbH



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Would you like to know more, need a consultation appointment or an individual solution?

We look forward to hear from you.