ADR-compliant system
for storage, quarantine and transportation of Lithium-Ion-batteries ranging from defective to unsafe for transportation
The Genius Group

Genius Technologie GmbH is a company of Genius Group from Berlin Rangsdorf. Established in 2010 our team develops innovative solutions for fire protection, transportation and the storage of Lithium-Ion-batteries as well as special extinguishing systems. Our highly skilled team members know what the industry needs due to experiences made in scientific and technological areas. Genius Entwicklungsgesellschaft works closely together with institutes and associations like BAM, MPA, Fraunhofer Institute and others on application solutions as part of the companies R&D and subsequent approval procedure. At the same time for all our products and procedures we ensure sustainability. Customers like VW, Porsche, Mercedes Benz, Zeppelin, Audi, the European Commission, Millbrook, FEV, etc. therefore rely on our solutions. Our products are in use around the world. Our existing portfolio has also been extended by customized applications for national and international customers considering legal and economic requirements.

PyroBubbles® the proven, patented filling agent

Ideal filling agent for storage and transportation of Lithium-Ion-batteries (UN 3480, UN 3090)

FEATURES:

- approx. 8-10 times lighter than sand (approx. 230 kg/m³)
- Absorption of electrolyte (tested by BAM)
- Low thermal conductivity and electrically insulating
- Thermal and chemical stability (<1050°C)
- Specific thermal capacity of only 0.7 kJ/(kg·K), porosity 85%
- Condensation of vapour on the surface of the PyroBubbles®
- Non-flammable material (A1, DIN 4102, EN 13501)
- Protection against vibration due to fixing
- Dust-free due to PE bag
- Storable, low maintenance costs and maintenance-free
- 100% Made in Germany
- 100% ecological
- 100% available
**Genius** Metal transport containers

- **Safety system** for storage and transportation of Lithium-Ion-batteries weighing up to 800kg that are damaged, defective or unsafe, according to SV 376, P 91, LP 906, ADR
- **Safest protection** against thermal runaway, exothermic reactions, no danger to the environment
- **Steel containers** from S to XXL
- **Tested boxes** with UN approvals
- **Long-term reuse** of the system
- **Easy to handle**
- **Approved transportation containers** up to 800 kg, plus LP special production
- **Various specifications available**
- **Scientific support** of real fire tests
- **International references:** Volkswagen, Porsche, Audi, Vattenfall, European Union, Daimler, etc.

The temperature of the outer walls remains well below 100°C, even during and after a thermal runaway of the battery. Example: **Genius Box**

### Table: Transport Container Specifications

<table>
<thead>
<tr>
<th>Article no.</th>
<th>Transport Container</th>
<th>Outside dimensions (mm)</th>
<th>Inside dimensions (mm)</th>
<th>Max. size battery (mm)</th>
<th>Material</th>
<th>Volume (l)</th>
<th>Max. gross weight (kg)</th>
<th>Max. net hazardous goods weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2101</td>
<td>Genius S-Box X1</td>
<td>799 x 599 x 734</td>
<td>676 x 476 x 580</td>
<td>436 x 236 x 180</td>
<td>stainless steel</td>
<td>187</td>
<td>160</td>
<td>66</td>
</tr>
<tr>
<td>2102</td>
<td>Genius S-Box X2</td>
<td>799 x 599 x 1114</td>
<td>676 x 476 x 960</td>
<td>436 x 236 x 560</td>
<td>stainless steel</td>
<td>309</td>
<td>240</td>
<td>110</td>
</tr>
<tr>
<td>2103</td>
<td>Genius M-Box X1</td>
<td>1199 x 799 x 792</td>
<td>1076 x 676 x 640</td>
<td>836 x 436 x 240</td>
<td>stainless steel</td>
<td>466</td>
<td>350</td>
<td>155</td>
</tr>
<tr>
<td>2104</td>
<td>Genius M-Box X2</td>
<td>1199 x 799 x 1252</td>
<td>1076 x 676 x 1100</td>
<td>836 x 436 x 680</td>
<td>stainless steel</td>
<td>800</td>
<td>630</td>
<td>360</td>
</tr>
<tr>
<td>2105</td>
<td>Genius XXL-Box</td>
<td>2500 x 1484 x 1029</td>
<td>2376 x 1356 x 800</td>
<td>2136 x 1120 x 400</td>
<td>stainless steel</td>
<td>2603</td>
<td>1212</td>
<td>400</td>
</tr>
<tr>
<td>2112</td>
<td>Genius LP1-Box Classic</td>
<td>2835 x 2135 x 957</td>
<td>2159 - 2699 x 1460 - 2000 x 570</td>
<td>2299 x 1600 x 317</td>
<td>galvanized steel</td>
<td>2986</td>
<td>2024</td>
<td>842</td>
</tr>
<tr>
<td>2113</td>
<td>Genius LP1-Box Basic</td>
<td>2835 x 2135 x 957</td>
<td>2159 - 2699 x 1460 - 2000 x 570</td>
<td>2299 x 1600 x 317</td>
<td>galvanized steel</td>
<td>2986</td>
<td>2024</td>
<td>842</td>
</tr>
<tr>
<td>2114</td>
<td>Genius L² - Box</td>
<td>1800 x 1400 x 1386</td>
<td>1270 x 870 x 703</td>
<td>1070 x 670 x 503</td>
<td>stainless steel</td>
<td>777</td>
<td>1608</td>
<td>400</td>
</tr>
<tr>
<td>2115</td>
<td>Genius LP 2 - Box</td>
<td>3175 x 2400 x 1349</td>
<td>2670 x 1900 x 590</td>
<td>2470 x 1700 x 390</td>
<td>stainless steel</td>
<td>2993</td>
<td>3960</td>
<td>800</td>
</tr>
</tbody>
</table>

---

**Genius XXL Box**
Overview Metal transport containers
Transport, storage and quarantine box
Genius Plastic transport containers

- **Safety system** for storage and transportation of Lithium-Ion-batteries that are damaged or defective, according to SV 376, P 911, LP 906, ADR
- **For E-bike batteries**, power tools, laptop and mobile batteries, automobile batteries, E-vehicle batteries, etc.
- **Safety system** for storage and transportation of Lithium-Ion-batteries that are not damaged, defective or at the end of their service life (EOL) according to SV 377, P909
- **Transportation** of prototypes according to SV 310, P910
- **Safe protection** against thermal runaway, exothermic reaction without risk to the environment
- **Standard sizes** for easy logistics, stackable up to 3.0 metres
- **Tested boxes** with UN approvals
- **Long-term** reuse of the system
- **Easy to handle**
- **X 13, X 30, Y 45 and Y 456 coding**

Packaging methods

The degree of safety (layer thickness of PyroBubbles®) depends on the cell chemistry, weight and condition of the batteries. Filling and emptying processes are designed for easy handling. We offer three different packaging concepts for safety containers: The powder-coated steel basket (Advanced and Premium) ensures that the minimum safety distances of the batteries from the outside of the container and the container bottom are maintained so that an optimum safety level is guaranteed at any time. The basket is permeable to allow leaking electrolyte to escape. The Advanced version allows the batteries to be easily removed with the basket while the PyroBubbles® remain in the box. Cushions are placed in the Basic and Premium versions for easy handling. These cushions are wrapped in thin, needled polyethylene (PE) film and filled with PyroBubbles®. If necessary, the film dissolves and the PyroBubbles® extinguishing agent takes its full effect.
Overview Plastic transport containers

**Genius S-Box Basic**
- Filling with PE bags (700ml) incl. PyroBubbles®
- Box filled with EOL or defective Li-batteries
- Filled PE bags up to the lid edge. Dust-free, reusable

**Genius S-Box Advanced**
- Powder-coated metal basket at 3cm distance from inner edge of transport box
- EOL, damaged, defective Li-batteries plus filling up to the lid edge with loose PyroBubbles®
- Simple removal of the batteries with the basket

**Genius S-Box Premium**
- Permanent PyroBubble® side-layer between the side wall and metal basket
- Filled with PE bags up to the lid edge. Dust-free, reusable

**Genius XS-Box Basic / Advanced**
- Filled PE bags up to the lid edge. Dust-free, reusable

**Genius XS-Box Basic**
- Genus XS-Box Basic

**Genius XS-Box**
- Genus XS-Box

**Genius XS-Box Advanced**
- Genus XS-Box Advanced

**Genius M-Box Advanced**
- Filled with PE bags up to the lid edge. Dust-free, reusable

**Genius M-Box**
- Genus M-Box

**Genius M-Box Advanced**
- Genus M-Box Advanced
The increasing energy density of Lithium-Ion-batteries and the inexorable use of these energy sources in all industrial sectors inevitably leads to a significantly increased hazard potential (transport damage, potential for spontaneous combustion, product damage, etc.). To date, the are no regulations in public law (VdS 3103: 2016-05 (02)) concerning the storage and provision of lithium batteries. Genius Group has developed an innovative and safe storage system in collaboration with one of the leading manufacturers of metal boxes in Europe. The galvanized metal double walls of the special containers are filled with PyroBubbles®. The lid is likewise securely protected with PyroBubbles®. Even batteries or cells in boxes or other storage units can be quickly and easily stored and protected in these containers. Even in the event of a thermal runaway of the stored batteries the immediate environment will not be endangered. In addition, the batteries are also protected against external influences. The Genius Storage System represents a simple, weather-proof, safe and flexible solution for the storage of Lithium-Ion-batteries for all industrial sectors. Elaborate separate fire protection containers and halls as well as shelters are thus no more required.
In addition to and as completion of its value chain, Genius expands its range of products into the area of test bench containers for Lithium-Ion cells and batteries. As such, many years of experience with real fire tests with small to very large Lithium-Ion-batteries in the electromobility sector played a decisive role. The customized test bench containers are used to examine and determine the performance limits of the latest Lithium-Ion-batteries from the electronic and automotive industry. All containers are made of steel. Of course there are individual ports for cable bushings. The box is easy to move. Battery tests that are safe from a fire protection perspective are optimally guaranteed by the convenient packing cushions and pressure relief valves, which are filled with PyroBubbles®. Thus, resources are used efficiently and economically.

### Genius test bench container

<table>
<thead>
<tr>
<th>Article no.</th>
<th>Test bench container</th>
<th>Outside dimensions (mm)</th>
<th>Inside dimensions (mm)</th>
<th>Max. size battery (mm)</th>
<th>Material</th>
<th>Volume (l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2502</td>
<td>Genius Test Bench 800</td>
<td>1199 x 799 x 1252</td>
<td>1076 x 676 x 1100</td>
<td>1076 x 676 x 1100</td>
<td>stainless steel</td>
<td>800</td>
</tr>
<tr>
<td>2505</td>
<td>Genius Test Bench 2100</td>
<td>2100 x 1100 x 120</td>
<td>1800 x 800 x 560</td>
<td>1800 x 800 x 560</td>
<td>galvanized steel</td>
<td>2100</td>
</tr>
<tr>
<td>2503</td>
<td>Genius Test Bench 4200</td>
<td>2835 x 2135 x 1242</td>
<td>2640 x 2000 x 800</td>
<td>2240 x 1600 x 400</td>
<td>painted steel</td>
<td>4224</td>
</tr>
<tr>
<td>2501</td>
<td>Genius Test Bench 4500</td>
<td>2835 x 2135 x 1242</td>
<td>2159-2699 x 1460</td>
<td>2299 x 1600 x 455</td>
<td>galvanized steel</td>
<td>4491</td>
</tr>
<tr>
<td>2504</td>
<td>Genius Test Bench 4900</td>
<td>2935 x 2135 x 1287</td>
<td>2258-2800 x 1458</td>
<td>2400 x 1600 x 500</td>
<td>galvanized steel</td>
<td>4900</td>
</tr>
</tbody>
</table>
Would you like to learn more, book an appointment or find an individual solution? Then we are looking forward to your message.