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Sourcing Battery Holders: A Small Component with a Major Responsibility

Battery holders are often treated as simple, low-cost components. The holder is the critical connection between the battery and the equipment it powers. A poor selection can cause intermittent operation, excessive voltage drops, corrosion, overheating, damaged cells or complete product failure. Buyers should therefore approach battery-holder sourcing as an engineering and supply-chain decision, not merely a price comparison.

The process should begin with a detailed application profile. Buyers must identify the battery chemistry, cell size, number of cells, operating voltage, current requirements and whether the cells are protected or unprotected. Physical dimensions are equally important. For example, protected 18650 lithium-ion cells are often longer than standard cells and may not fit holders design around nominal dimensions.

Environmental and mechanical conditions should be documented next. Will the product experience vibration, shock, moisture, dust, chemicals or extreme temperatures? How frequently will batteries be replaced? Will users insert cells correctly, or should reverse-polarity protection be incorporated? Spring pressure, contact resistance, terminal design, wire gauge, mounting method and housing material all influence reliability throughout the product's expected life.

Standards and classifications must also remain on the buyer's radar. Requirements may involve IEC battery standards, UL-recognized materials, RoHS and REACH compliance, flammability ratings, transportation rules and application-specific approvals. It is important to distinguish between standards applying to the battery and those applying to the holder or finished assembly. UN 38.3, for example, addresses the transportation testing of lithium batteries rather than certifying a battery holder itself. Requirements should always be confirmed for the completed product and its destination markets.

Different industries create different priorities. Automotive equipment requires resistance to vibration, temperature cycling and corrosive conditions. Medical devices demand disciplined risk management, dependable power continuity, traceable materials and designs that reduce user error. FDA guidance emphasizes evaluating risks created through user interaction, an important consideration for battery access and replacement. Hazardous locations may require sealed construction, controlled contact behavior and certification under the applicable ATEX, IECEx or national framework. Consumer products may place greater emphasis on child-resistant access, polarity markings and protection against short circuits.

One frequently overlooked issue is the holder's operational lifespan. Buyers may evaluate how long the battery lasts while ignoring how many battery-replacement cycles the contacts and enclosure can withstand. Contact plating, spring relaxation, plastic aging and exposure to leaking electrolytes can gradually undermine performance. A low-cost holder that fails prematurely can generate warranty claims far exceeding the original savings.

Another common mistake is assuming that every solution must be purchased off the shelf. Standard holders are usually the fastest and most economical choice, but custom and semi-custom designs can solve problems involving unusual cell dimensions, restricted PCB space, special contacts, covers, straps, leads, connectors or mounting arrangements. Early collaboration with the manufacturer can often produce a better solution before the equipment design becomes locked.

Finally, buyers should investigate supply continuity as carefully as technical suitability. Ask whether the holder is stocked, built to order or dependent on special materials. Confirm production lead time, minimum quantities, tooling requirements, sample availability and realistic delivery schedules. Approved alternatives should be qualified before shortages occur, not during a production emergency.

The ideal purchasing decision balances safety, reliability, compliance, availability and total installed cost. Battery holders may be small components but selecting them correctly protects the performance and reputation of the entire product.

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