

# BATTERY PACKS

## Purpose of Packs

For the most part, nickel-metal hydride batteries are used in battery packs when installed in products. When these batteries are used, the type of battery, number of cells, shape of the pack, constituent parts of the pack, etc, are determined by the specifications (voltage, load current) of the product. In addition, the charge specifications, space available in the battery

compartment, operating conditions, etc., must also be considered. At Panasonic, we promote battery packs which emphasize the safety and reliability of the batteries. We customize packs that satisfy the unique requirements of each customer. Do not hesitate to contact us regarding your specific needs.

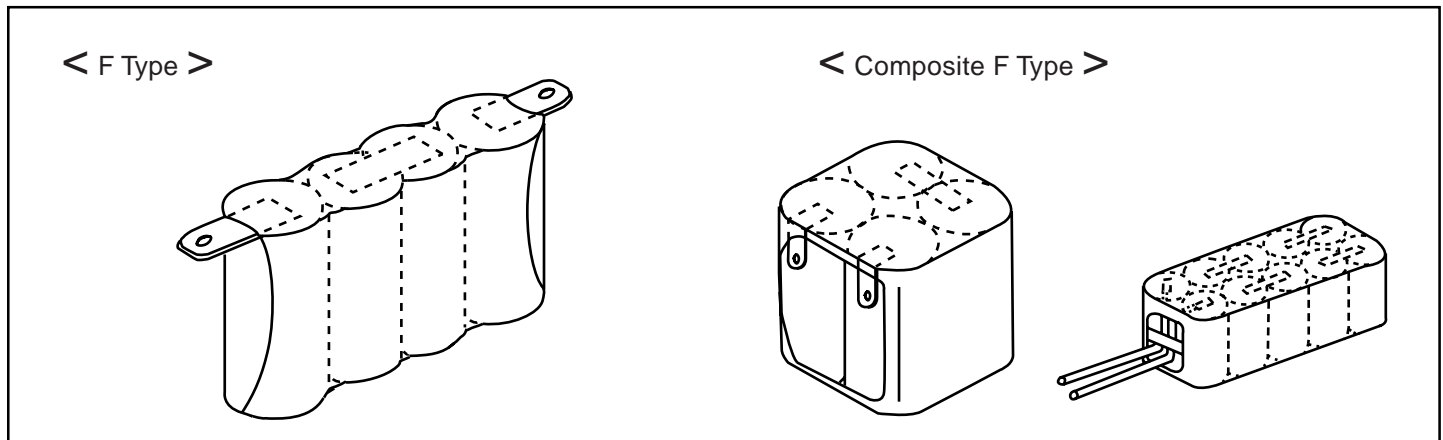
## Shapes of Battery Packs (Typical & Standard Types)

### F Type

The required number of single cells are arranged side by side along their diameter, connected by nickel plates, and packed together with heat-shrinkable tubing.

### Composite F type

Single cells are connected in the F type configuration but in two to five rows rather than one row and packed together by heat-shrinkable tubing.

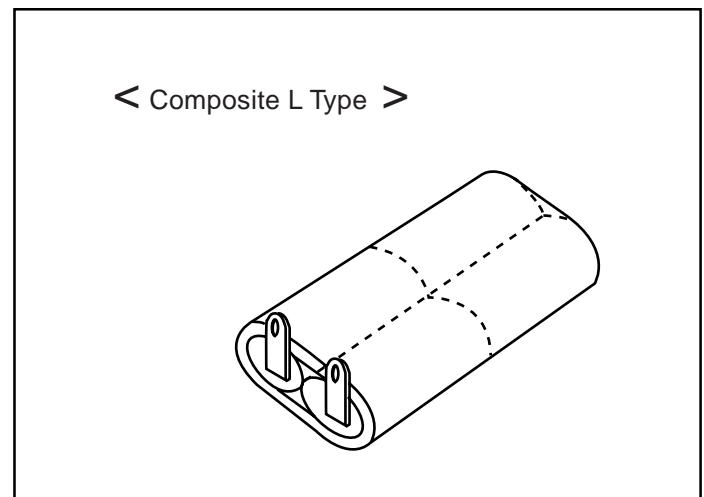


### L Type

The required number of single cells are arranged in a line in the axis of the batteries, connected by connecting plates, and packed together by heat-shrinkable tubing.

### Composite L Type

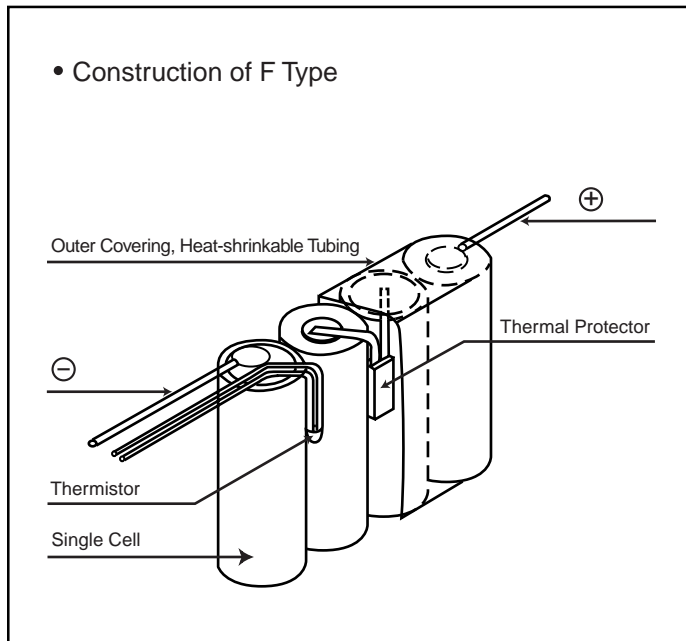
Single cells connected in the L type configuration are further connected in two to five rows, and packed together by heat-shrinkable tubing.



## BATTERY PACKS - CONTINUED

### Construction of Battery Packs

The figure below shows the basic construction of a battery pack. It is recommended that a thermal protector, which is used for temperature detection and external short-circuiting, be installed in a nickel-metal hydride battery pack to prevent any rise in the temperature of the pack.



### Special Pack Shapes

Panasonic is prepared to meet customers' needs for customized specifications (such as battery packs in plastic resin cases). Please contact Panasonic for detailed discussions concerning specifications, lead times, etc.

When designing battery packs, please consult Panasonic for technical considerations on the following:

- (1) Plastic Resin Pack  
Please take into consideration lead-time for tooling and component lead times.
- (2) Packs needing a fuel gauge and battery packs with built-in chargers.