

## Battery MSDS: Model 690 VAL

### ELECTRICAL SPECIFICATIONS

Voltage (V)	12
Capacity (Ah) 20 Hour Rate	150
Cold Cranking Amps @ (- 18° C) En	860
Reserve Capacity (Minutes)	
Load Test	450 Amps for 15 seconds (above 9.3 Volts)
Operating Temperature:	- 18°C to 52°C

### DIMENSIONS

Max. Length (mm): (L)	513
Max. Width (mm): (W)	223
Max. Height (mm): (L)	223

### CONTAINER

Mass (Weight Kg)	41,2
Case Material	Poly Propylene
Flame Arrestor (FA):	Yes
Bottom hold down:	B00
Type of Terminal:	RHP Tapered

### GRID DESIGN

Calcium- Silver Power frame Grid Technology delivers consistent power reserves to meet any challenge. The grid alloy, unique in Europe, is formed of a positive calcium-Silver grid and a negative Calcium grid, reducing the batteries water consumption to a minimum. Battery expected design life in a UPS application between 3-5 years under correct operating conditions.

### WARRANTY

The Hitachi battery is guaranteed for two year against manufacturing and material defects in automotive applications from the purchasing date as indicated on the invoice. The battery is guaranteed for one year when used in UPS applications. The guarantee does not cover flat or discharged batteries, bent, burnt or broken terminals or casings or fitment in applications for which it was not designed.

The warranty covers the replacement of the defective battery with an equivalent new battery. This warranty does not in any way cover personal loss or damage owing to hidden defects. Before validating the warranty, Hitachi will recharge and test the battery according to JC – AS instructions. Please contact Hitachi directly for more details on Warranty Terms and Conditions.

## Battery MSDS: Model 690 VAL

### FLOAT CHARGING OF ENERTEC STANDBY POWER BATTERIES

Hitachi standby power batteries, can be maintained at a full charge by float charging at 13.5 volts/80° F (27 °C) for long periods of time. Battery electrolyte consists of a mixture of sulphuric acid (37 %) at full charge) and water. Acid is heavier than water and will collect at the bottom of cell, in stationary applications. To overcome this electrolyte stratification, it is recommended that the battery be given an equalization charge at six-month intervals. An equalization charge entails charging the battery (which is fully charged) at 15.5 volts/80° F (27° C) for six hours. An equalization charge promotes gassing which will effectively mix the electrolyte.

Both float and equalization voltages should be compensated for temperatures that are either above or below 80° F (27° C). For each degree below 80° F (27° C) add 0.019 (0.033) volts. Conversely for each degree risen above 80° F (27° C) subtract 0.019 (0.033) volts. Please note, however, that a battery has a large mass and does not respond quickly to changes in ambient temperature. It is also typical for standby batteries to be exposed to temperature swings and it may be necessary to select an average temperature value. The following table should be of help in applying temperature compensation to standby power applications.

BATTERY TEMP	FLOAT VOLTAGE	EQUALIZATION VOLTAGE
15° F / -9.4° C	14.70	16.70
20° F / -6.7° C	14.61	16.61
30° F / -1.1° C	14.42	16.42
40° F / 4.4° C	14.24	16.24
50° F / 10.0° C	14.06	16.06
60° F / 15.6° C	13.87	15.87
70° F / 21.1° C	13.69	15.69
80° F / 27° C	13.50	15.50
90° F / 32.2° C	13.32	15.32
100° F / 37.6° C	13.14	15.14
110° F / 43.3° C	12.96	14.96
120° F / 48.9° C	12.77	14.77