



**THE DATASHEET OF**  
**177**



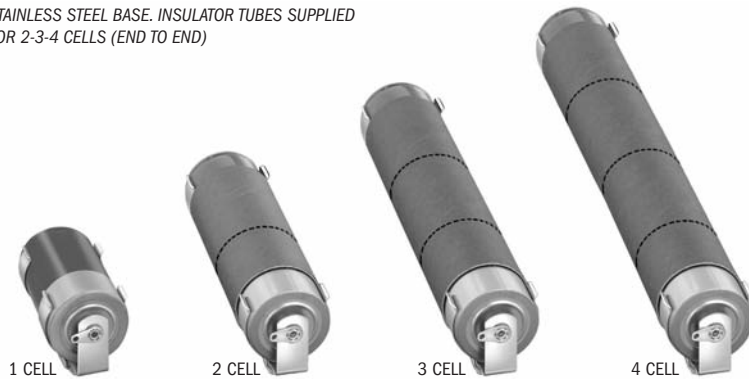
## RUGGED STEEL BATTERY HOLDERS



An established design that has gained wide acceptance for commercial and military applications. Batteries are held under constant spring tension assuring low contact resistance. Retainer clips are available to lock batteries in place and prevent shifting or loosening. Refer to page 10. Recommended for use where shock or severe vibration is encountered. Special fabrication for more than four batteries or variations from standard stock parts can be assembled to meet your requirements.

- Ideal for NiCd, Alkaline, NiMH, Carbon, Zinc and Lithium Cells
- Corrosion Resistant, Nickel Plate
- Brass Contacts, Nickel Plate
- Moisture Proof Resin Impregnated, Fibre Insulating Washers

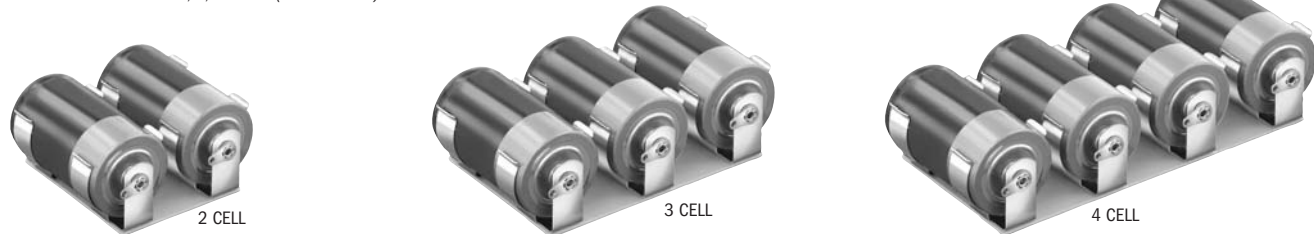
**FIG. 1** STAINLESS STEEL BASE. INSULATOR TUBES SUPPLIED FOR 2-3-4 CELLS (END TO END)



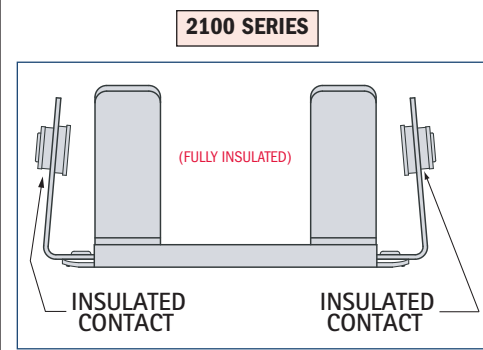
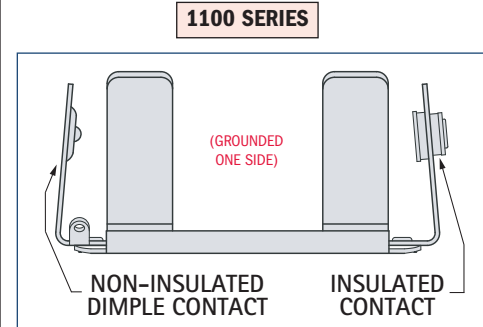
**FIG. 2** STEEL BASE. LITHIUM (SINGLE CELL)



**FIG. 3** PHENOLIC BASE FOR 2, 3, 4 CELLS (SIDE BY SIDE)



| 1100 SERIES              | 2100 SERIES            | BATTERY CROSS REFERENCE |          |  |  |                    |   |
|--------------------------|------------------------|-------------------------|----------|--|--|--------------------|---|
| ONE CONTACT INSULATED    | ALL CONTACTS INSULATED | HOLDS NO. OF CELLS      | FIG. NO. | EVEREADY   | DURACELL   | RAY-O-VAC          | NEDA  |
| CAT. NO.                 | CAT. NO.               |                         |          |  |  |                    |   |
| <b>"AA" CELL HOLDERS</b> |                        |                         |          | ( BATTERY SIZE $.531 (13.4)$ O.D. $\times$ $1.906 (48.4)$ L )  |  |                    |   |
| 1139                     | 2139                   | 1                       | 1        | E9, EV15, EN91,  | ZM9, RM12R, NC15AA,                              | 5AA, 615, 815, 7AA | 15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M |
| —                        | 2140*                  | 2                       | 3        | CH15, E133, E133N, E177, 505, 523, 1015, 1215                  | M15F, M15AA, TR133R, TR177, M505, MN1500, PC1500 |                    |   |
| —                        | 2171*                  | 3                       | 3        |  |  |                    |   |
| —                        | 2182*                  | 4                       | 3        |  |  |                    |   |
| 1189                     | 2189                   | 2                       | 1        |  |  |                    |   |
| 1191                     | 2191                   | 3                       | 1        |  |  |                    |   |
| 1194                     | 2194                   | 4                       | 1        |  |  |                    |   |
| <b>"C" CELL HOLDERS</b>  |                        |                         |          | ( BATTERY SIZE $.875 (22.2)$ O.D. $\times$ $1.969 (50.5)$ L )  |  |                    |   |
| 1173                     | 2173                   | 1                       | 1        | CH35, E93, 935, 1235, EV35, EN93                               | M14F, M14HD, NC14C, TR286, MN1400, PC1400        | 1C, 614, 814       | 14A, 14C, 14D, 14F, 14NC, 1600M   |
| —                        | 2174*                  | 2                       | 3        |  |  |                    |   |
| —                        | 2187*                  | 3                       | 3        |  |  |                    |   |
| —                        | 2188*                  | 4                       | 3        |  |  |                    |   |
| 1185                     | 2185                   | 2                       | 1        |  |  |                    |   |
| 1195                     | 2195                   | 3                       | 1        |  |  |                    |   |
| 1198                     | 2198                   | 4                       | 1        |  |  |                    |   |
| <b>"D" CELL HOLDERS</b>  |                        |                         |          | ( BATTERY SIZE $1.187 (30.1)$ O.D. $\times$ $2.312 (58.7)$ L ) |  |                    |   |
| 1175                     | 2175                   | 1                       | 1        | CH50, E95, 950, 1250, EV50, EN95                               | M13F, NC13D, S42, M13HD, TR289, MN1300, PC1300   | 2D, 6D, 613, 813   | 13A, 13C, 13D, 13F, 13NC, 1115M, 1810M  |
| —                        | 2176*                  | 2                       | 3        |  |  |                    |   |
| —                        | 2190*                  | 3                       | 3        |  |  |                    |   |
| —                        | 2192*                  | 4                       | 3        |  |  |                    |   |
| 1186                     | 2186                   | 2                       | 1        |  |  |                    |   |
| 1199                     | 2199                   | 3                       | 1        |  |  |                    |   |
| 1162                     | 2162                   | 4                       | 1        |  |  |                    |   |



**MODIFICATIONS**

We welcome the opportunity to quote on variations of standard items. Use our engineering service for your custom-built holders. Holders with PC and Quick-Fit terminals available on special order.

| LITHIUM CELL HOLDERS ALL CONTACTS INSULATED | BATTERY  | FIG. NO. | BATTERY SIZE                       | DURACELL       | PANASONIC | SANYO     |
|---|----------|----------|------------------------------------|----------------|-----------|-----------|
| 1103  | "1/2 AA" | 2        | .510 (12.95) $\times$ .990 (25.15) | P $\times$ 28L | CR14250   | CR14250SE |
| 1105  | "1/2 A"  | 2        | .661 (16.80) $\times$ .886 (22.50) | BR-1/2A        | —         | —         |

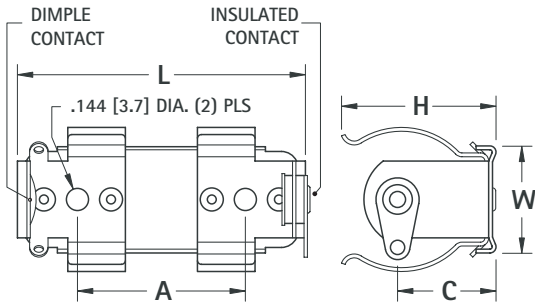
\*Clips mounted on .062 (1.57) thick Phenolic board.

## DIMENSIONAL DRAWINGS FOR STEEL BATTERY HOLDERS

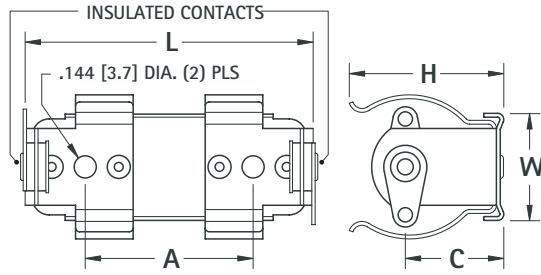
**MATERIAL SPECIFICATIONS:**

**Clips:** Spring Steel, Nickel Plate  
**Contact Eyelets:** Brass, Nickel Plate  
**Insulating Washers:** Moisture Proof, Resin Impregnated Fibre  
**Solder Lugs:** Brass, Tin Plate

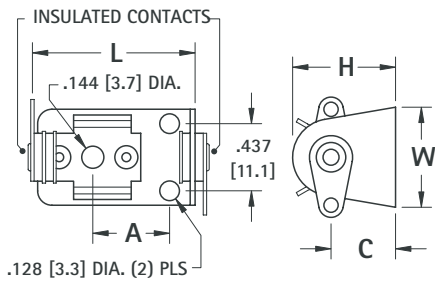
**Phenolic Base:** Type PBE, Per MIL-P-3115C  
**Stainless Steel Base:** Ribbed, For Added Support  
**Steel Base:** Spring Steel, Nickel Plate



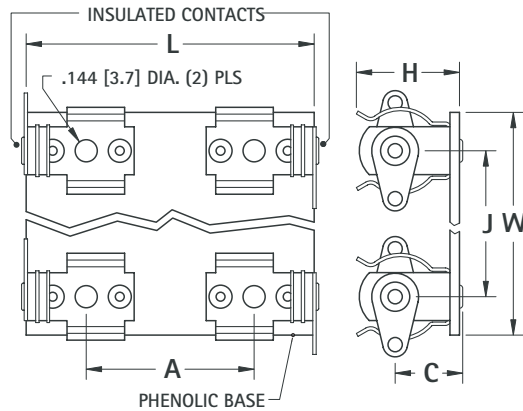
**DWG. 1 FOR 1100 SERIES STAINLESS STEEL BASE (END-TO-END)**



**DWG. 1 FOR 2100 SERIES STAINLESS STEEL BASE (END-TO-END)**



**DWG. 2 FOR LITHIUM STEEL BASE (SINGLE CELL)**



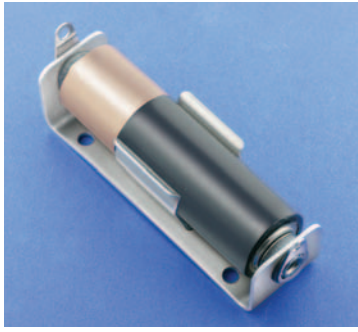
**DWG. 3 FOR 2100 SERIES PHENOLIC BASE (SIDE-BY-SIDE)**

| 1100 SERIES                 | 2100 SERIES            | HOLDS NO. OF CELLS | DWG. NO. | W             | L              | H                | C                        | J                      | A                               |
|-----------------------------|------------------------|--------------------|----------|---------------|----------------|------------------|--------------------------|------------------------|---------------------------------|
| ONE CONTACT INSULATED       | ALL CONTACTS INSULATED |                    |          | Width Of Base | Length Of Base | Height Of Holder | Height to Battery Center | Mounting Hole Distance | Mounting Holes Center To Center |
| CAT. NO.                    | CAT. NO.               |                    |          |               |                |                  |                          |                        |                                 |
| <b>"AA" CELL HOLDERS</b>    |                        |                    |          |               |                |                  |                          |                        |                                 |
| 1139                        | 2139                   | 1                  | 1        | .687 (17.4)   | 2.125 (54.0)   | .656 (16.7)      | .437 (11.1)              | -                      | 1.343 (34.1)                    |
| -                           | 2140*                  | 2                  | 3        | 1.250 (31.8)  | 2.125 (54.0)   | .656 (16.7)      | .437 (11.1)              | .750 (19.1)            | 1.343 (34.1)                    |
| -                           | 2171*                  | 3                  | 3        | 2.000 (50.8)  | 2.125 (54.0)   | .656 (16.7)      | .437 (11.1)              | .750 (19.1)            | 1.343 (34.1)                    |
| -                           | 2182*                  | 4                  | 3        | 2.750 (69.9)  | 2.125 (54.0)   | .656 (16.7)      | .437 (11.1)              | .750 (19.1)            | 1.343 (34.1)                    |
| 1189                        | 2189                   | 2                  | 1        | .687 (17.4)   | 4.093 (104.0)  | .656 (16.7)      | .437 (11.1)              | -                      | 3.312 (84.1)                    |
| 1191                        | 2191                   | 3                  | 1        | .687 (17.4)   | 6.030 (153.2)  | .656 (16.7)      | .437 (11.1)              | -                      | 5.250 (133.4)                   |
| 1194                        | 2194                   | 4                  | 1        | .687 (17.4)   | 8.010 (203.5)  | .656 (16.7)      | .437 (11.1)              | -                      | 7.230 (183.6)                   |
| <b>"C" CELL HOLDERS</b>     |                        |                    |          |               |                |                  |                          |                        |                                 |
| 1173                        | 2173                   | 1                  | 1        | .687 (17.4)   | 2.125 (54.0)   | 1.000 (25.4)     | .625 (15.9)              | -                      | 1.343 (34.1)                    |
| -                           | 2174*                  | 2                  | 3        | 1.750 (44.5)  | 2.062 (52.4)   | 1.000 (25.4)     | .625 (15.9)              | 1.187 (30.1)           | 1.343 (34.1)                    |
| -                           | 2187*                  | 3                  | 3        | 2.937 (74.6)  | 2.062 (52.4)   | 1.000 (25.4)     | .625 (15.9)              | 1.187 (30.1)           | 1.343 (34.1)                    |
| -                           | 2188*                  | 4                  | 3        | 4.125 (104.8) | 2.062 (52.4)   | 1.000 (25.4)     | .625 (15.9)              | 1.187 (30.1)           | 1.343 (34.1)                    |
| 1185                        | 2185                   | 2                  | 1        | .687 (17.4)   | 4.093 (104.0)  | 1.000 (25.4)     | .625 (15.9)              | -                      | 3.312 (84.1)                    |
| 1195                        | 2195                   | 3                  | 1        | .687 (17.4)   | 5.937 (150.8)  | 1.000 (25.4)     | .625 (15.9)              | -                      | 5.156 (131.0)                   |
| 1198                        | 2198                   | 4                  | 1        | .687 (17.4)   | 7.906 (200.8)  | 1.000 (25.4)     | .625 (15.9)              | -                      | 7.125 (181.0)                   |
| <b>"D" CELL HOLDERS</b>     |                        |                    |          |               |                |                  |                          |                        |                                 |
| 1175                        | 2175                   | 1                  | 1        | .687 (17.4)   | 2.562 (65.1)   | 1.281 (32.5)     | .796 (20.2)              | -                      | 1.625 (41.3)                    |
| -                           | 2176*                  | 2                  | 3        | 2.125 (54.0)  | 2.562 (65.1)   | 1.281 (32.5)     | .796 (20.2)              | 1.562 (39.7)           | 1.625 (41.3)                    |
| -                           | 2190*                  | 3                  | 3        | 3.687 (93.6)  | 2.562 (65.1)   | 1.281 (32.5)     | .796 (20.2)              | 1.562 (39.7)           | 1.625 (41.3)                    |
| -                           | 2192*                  | 4                  | 3        | 5.250 (133.4) | 2.562 (65.1)   | 1.281 (32.5)     | .796 (20.2)              | 1.562 (39.7)           | 1.625 (41.3)                    |
| 1186                        | 2186                   | 2                  | 1        | .687 (17.4)   | 4.937 (125.4)  | 1.281 (32.5)     | .796 (20.2)              | -                      | 4.000 (101.6)                   |
| 1199                        | 2199                   | 3                  | 1        | .687 (17.4)   | 7.281 (184.9)  | 1.281 (32.5)     | .796 (20.2)              | -                      | 6.343 (161.1)                   |
| 1162                        | 2162                   | 4                  | 1        | .687 (17.4)   | 9.625 (244.5)  | 1.281 (32.5)     | .796 (20.2)              | -                      | 8.687 (220.6)                   |
| <b>LITHIUM CELL HOLDERS</b> |                        |                    |          |               |                |                  |                          |                        |                                 |
| 1103                        |                        | 1                  | 2        | .625 (15.9)   | 1.156 (29.4)   | .595 (15.1)      | .345 (8.8)               | -                      | .531 (13.5)                     |
| 1105                        |                        | 1                  | 2        | .390 (9.9)    | 1.044 (26.5)   | .670 (17.0)      | .420 (10.7)              | -                      | .500 (12.7)                     |

\*Clips mounted on .062 (1.57) thick Phenolic board.

DIMENSIONS ARE FOR REFERENCE ONLY

## RUGGED & LIGHTWEIGHT ALUMINUM BATTERY HOLDERS

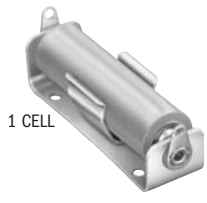


Lightweight yet strong, constructed of aircraft grade aluminum. Batteries snap-fit securely into clips.

- Brass Eyelets, Nickel Plate
- Brass Lugs, Nickel Plate
- Moisture Proof, Resin Impregnated, Fibre Insulating Washers
- Aluminum 2024-T3, Frame & Clip

# ALUMINUM BATTERY HOLDERS

**FIG. 1**



1 CELL

**FIG. 2**



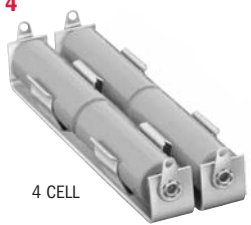
2 CELL

**FIG. 3**

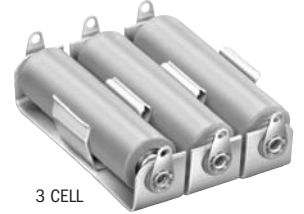


2 CELL

**FIG. 4**



4 CELL



3 CELL



6 CELL  
CAT. NO. 193  
CAT. NO. 197  
CAT. NO. 201



4 CELL



6 CELL  
CAT. NO. 205

**FIG. 5**



**FIG. 6**



| CAT. NO.                             | HOLDS NO. OF CELLS | FIG. NO. | BATTERY CROSS REFERENCE  |  |                    |   |
|--------------------------------------|--------------------|----------|--|--|--------------------|---|
|                                      |                    |          | EVEREADY   | DURACELL   | RAY-O-VAC          | NEDA  |
| <b>"AAA" CELL HOLDERS</b>            |                    |          | $\left( \begin{matrix} \text{BATTERY SIZE} & .375 (9.5) & \text{O.D.} \times & 1.673 (42.5) \\ & .468 (11.9) & & 1.752 (44.5) \end{matrix} \right) L$    |  |                    |   |
| 137                                  | 1                  | 1        | E92, 912, CH12   | M24F, MN2400   | 824                | 24A, 24F, 24P   |
| 138                                  | 2                  | 3        |  |  |                    |   |
| 169                                  | 3                  | 3        |  |  |                    |   |
| 170                                  | 4                  | 3        |  |  |                    |   |
| <b>"AA" CELL HOLDERS</b>             |                    |          | $\left( \begin{matrix} \text{BATTERY SIZE} & .531 (13.4) & \text{O.D.} \times & 1.906 (48.4) \\ & .561 (14.5) & & 1.988 (50.5) \end{matrix} \right) L$   |  |                    |   |
| 139                                  | 1                  | 1        | E9, EV15, EN91, CH15, E133, E133N, E177, 505, 523, 1015, 1215  | ZM9, RM12R, NC15AA, M15F, M15AA, TR133R, TR177, M505, MN1500, PC1500 | 5AA, 615, 815, 7AA | 15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M |
| 140                                  | 2                  | 3        |  |  |                    |   |
| 171                                  | 3                  | 3        |  |  |                    |   |
| 182                                  | 4                  | 3        |  |  |                    |   |
| 189                                  | 2                  | 2        |  |  |                    |   |
| 192                                  | 4                  | 4        |  |  |                    |   |
| 193                                  | 6                  | 4        |  |  |                    |   |
| <b>"C" CELL HOLDERS</b>              |                    |          | $\left( \begin{matrix} \text{BATTERY SIZE} & .875 (22.2) & \text{O.D.} \times & 1.875 (47.6) \\ & 1.125 (28.6) & & 1.969 (50.5) \end{matrix} \right) L$  |  |                    |   |
| 173                                  | 1                  | 1        | CH35, E93, 935, 1235, EV35, EN93   | M14F, M14HD, NC14C, TR286, MN1400, PC1400                            | 1C, 614, 814,      | 14A, 14C, 14D, 14F, 14NC, 1600M   |
| 174                                  | 2                  | 3*       |  |  |                    |   |
| 185                                  | 2                  | 2        |  |  |                    |   |
| 187                                  | 3                  | 3        |  |  |                    |   |
| 196                                  | 4                  | 4**      |  |  |                    |   |
| 197                                  | 6                  | 4        |  |  |                    |   |
| <b>"D" CELL HOLDERS</b>              |                    |          | $\left( \begin{matrix} \text{BATTERY SIZE} & 1.187 (30.1) & \text{O.D.} \times & 2.312 (58.7) \\ & 1.375 (34.9) & & 2.412 (61.3) \end{matrix} \right) L$ |  |                    |   |
| 175                                  | 1                  | 1        | CH50, E95, 950, 1250, EV50, EN95   | M13F, NC13D, S42, M13HD, TR289, MN1300, PC1300                       | 2D, 6D, 613, 813   | 13A, 13C, 13D, 13F, 13NC, 1115M, 1810M  |
| 176                                  | 2                  | 3*       |  |  |                    |   |
| 190                                  | 3                  | 3        |  |  |                    |   |
| 186                                  | 2                  | 2        |  |  |                    |   |
| 200                                  | 4                  | 4**      |  |  |                    |   |
| 201                                  | 6                  | 4        |  |  |                    |   |
| 205                                  | 6                  | 4***     |  |  |                    |   |
| <b>"N" CELL HOLDERS</b>              |                    |          | $\left( \begin{matrix} \text{BATTERY SIZE} & .375 (9.5) & \text{O.D.} \times & 1.110 (28.2) \\ & .468 (11.9) & & 1.189 (30.2) \end{matrix} \right) L$    |  |                    |   |
| 154                                  | 1                  | 1        | E90, E340E, E401E, EP401, EP401E   | MP401H   | R401, RP401, 810   | 910A, 910F, 910M, 1117M, 1118M, MN9100  |
| 155                                  | 2                  | 3        |  |  |                    |   |
| 156                                  | 3                  | 3        |  |  |                    |   |
| <b>"9 VOLT" BATTERY HOLDERS</b>      |                    |          |  |  |                    |   |
| 203-P                                | REFER TO PAGE 21   |          | CH22, EN22, E146X, 216, 522, 1222, E303396   | TR146X, M1604, M1604HD, MN16, PC146X,                                | A1604, D1604, 1604 | 1604A, 1604C, 1604D, 1604M, 1604NC, 1619M   |
| 303-P                                |                    |          |  |  |                    |   |
| 1290†                                |                    |          |  |  |                    |   |
| 1290-79                              |                    |          |  |  |                    |   |
| 1291†                                |                    |          |  |  |                    |   |
| 1291-79                              |                    |          |  |  |                    |   |
| <b>LITHIUM "2/3A" CELL HOLDER</b>    |                    |          |  |  |                    |   |
| 131                                  | 1                  | 1        | -  | DL-2/3A  | BR-2/3A            | CR-173355E  |
| <b>"15 VOLT" BATTERY HOLDERS</b>     |                    |          |  |  |                    |   |
| 161                                  | 1                  | 5        | -  | -  | -                  | 224   |
| 163                                  | 1                  | 5        | -  | -  | -                  | 208   |
| 167                                  | 2                  | 6*       | 411  | -  | -                  | 208   |
| <b>"22 1/2 VOLT" BATTERY HOLDERS</b> |                    |          |  |  |                    |   |
| 139                                  | 1                  | 1        | 505  | -  | -                  | 221   |
| 168                                  | 1                  | 5        | 420  | -  | -                  | 225   |
| 177                                  | 1                  | 5        | M215   | M215   | -                  | 215   |
| 178                                  | 2                  | 6*       |  |  |                    |   |
| <b>"30 VOLT" BATTERY HOLDERS</b>     |                    |          |  |  |                    |   |
| 183                                  | 1                  | 5        | 413  | -  | -                  | 210   |
| 184                                  | 1                  | 6*       |  |  |                    |   |

**MODIFICATIONS**  
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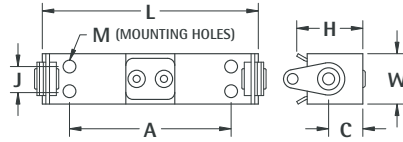
\* 1 Clip holds two batteries in place. \*\* 2 Clips hold four batteries in place. \*\*\* 3 Clips hold six batteries in place. † Recommended for battery thickness under .640 (16.3)

# DIMENSIONAL DRAWINGS FOR ALUMINUM BATTERY HOLDERS

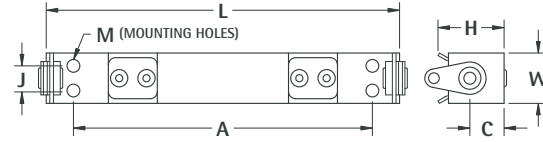
## MATERIAL SPECIFICATIONS

**Insulating Washers:** Moisture proof, resin impregnated fibre  
**Terminal Lugs:** Brass, Tin Plate

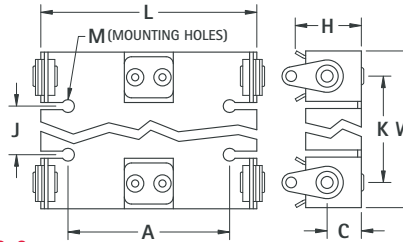
**Frame and Clips:** Aluminum 2024-T3  
**Contact Eyelet:** Brass, Nickel Plate



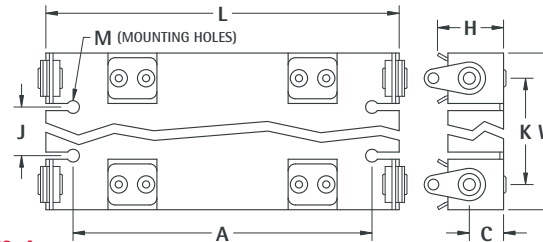
DWG. 1



DWG. 2



DWG. 3



DWG. 4

| CAT. NO.                       | FIG. NO. | W            | L             | H            | C                     | K                                | J                    | A                     | M                         |
|--------------------------------|----------|--------------|---------------|--------------|-----------------------|----------------------------------|----------------------|-----------------------|---------------------------|
|                                |          | Width        | Length        | Height       | Battery Center Height | Distance Between Battery Centers | Mounting Holes Width | Mounting Holes Length | Mounting Holes (Diameter) |
| <b>"AAA"</b>                   |          |              |               |              |                       |                                  |                      |                       |                           |
| 137                            | 1        | .437 (11.1)  | 1.915 (48.6)  | .467 (11.9)  | .281 (7.1)            | —                                | .250 (6.4)           | 1.500 (38.1)          | .111 (2.8)                |
| 138                            | 3        | .812 (20.6)  | 1.915 (48.6)  | .467 (11.9)  | .281 (7.1)            | .437 (11.1)                      | —                    | .875 (22.2)           | .140 (3.6)                |
| 169                            | 3        | 1.250 (31.8) | 1.915 (48.6)  | .467 (11.9)  | .281 (7.1)            | .437 (11.1)                      | .438 (11.1)          | .875 (22.2)           | .144 (3.7)                |
| 170                            | 3        | 1.687 (42.8) | 1.915 (48.6)  | .467 (11.9)  | .281 (7.1)            | .437 (11.1)                      | .875 (22.2)          | .875 (22.2)           | .144 (3.7)                |
| <b>"AA"</b>                    |          |              |               |              |                       |                                  |                      |                       |                           |
| 139                            | 1        | .625 (15.9)  | 2.140 (54.4)  | .578 (14.7)  | .392 (10.0)           | —                                | .406 (10.3)          | 1.500 (38.1)          | .111 (2.8)                |
| 140                            | 3        | 1.125 (28.6) | 2.156 (54.8)  | .562 (14.3)  | .375 (9.5)            | .625 (15.9)                      | —                    | 1.218 (30.9)          | .144 (3.7)                |
| 171                            | 3        | 1.750 (44.5) | 2.140 (54.4)  | .578 (14.7)  | .392 (10.0)           | .625 (15.9)                      | .625 (15.9)          | 1.218 (30.9)          | .144 (3.7)                |
| 182                            | 3        | 2.656 (67.5) | 2.140 (54.4)  | .615 (15.6)  | .421 (10.7)           | .718 (18.2)                      | 1.437 (36.5)         | 1.218 (30.9)          | .144 (3.7)                |
| 189                            | 2        | .625 (15.9)  | 4.110 (104.4) | .593 (15.1)  | .406 (10.3)           | —                                | .437 (11.1)          | 3.000 (76.2)          | .128 (3.3)                |
| 192                            | 4        | 1.125 (28.6) | 4.093 (104.0) | .593 (15.1)  | .406 (10.3)           | .625 (15.9)                      | —                    | 3.093 (78.6)          | .144 (3.7)                |
| 193                            | 4        | 1.750 (44.5) | 4.093 (104.0) | .593 (15.1)  | .406 (10.3)           | .625 (15.9)                      | .625 (15.9)          | 3.125 (79.4)          | .144 (3.7)                |
| <b>"C"</b>                     |          |              |               |              |                       |                                  |                      |                       |                           |
| 173                            | 1        | .750 (19.1)  | 2.093 (53.2)  | .968 (24.6)  | .593 (15.1)           | —                                | .437 (11.1)          | 1.500 (38.1)          | .144 (3.7)                |
| 174                            | 3*       | 1.625 (41.3) | 2.093 (53.2)  | 1.120 (28.4) | .593 (15.1)           | 1.000 (25.4)                     | —                    | 1.250 (31.75)         | .144 (3.7)                |
| 185                            | 2        | .750 (19.1)  | 4.046 (102.8) | .968 (24.6)  | .593 (15.1)           | —                                | .500 (12.7)          | 3.187 (80.9)          | .144 (3.7)                |
| 187                            | 3        | 2.843 (72.1) | 2.125 (54.0)  | .968 (24.6)  | .593 (15.1)           | 1.125 (28.6)                     | 1.125 (28.6)         | 1.250 (31.8)          | .144 (3.7)                |
| 196                            | 4**      | 1.625 (41.3) | 4.075 (103.5) | 1.120 (28.4) | .593 (15.1)           | —                                | —                    | 3.187 (80.9)          | .144 (3.7)                |
| 197                            | 4        | 2.875 (73.0) | 4.075 (103.5) | .968 (24.6)  | .593 (15.1)           | 1.000 (25.4)                     | 1.000 (25.4)         | 3.187 (80.9)          | .144 (3.7)                |
| <b>"D"</b>                     |          |              |               |              |                       |                                  |                      |                       |                           |
| 175                            | 1        | 1.000 (25.4) | 2.562 (65.1)  | 1.262 (32.1) | .763 (19.4)           | —                                | .750 (19.1)          | 1.750 (44.5)          | .128 (3.3)                |
| 176                            | 3*       | 2.062 (52.4) | 2.562 (65.1)  | 1.468 (37.3) | .741 (18.8)           | 1.312 (33.3)                     | —                    | 1.500 (38.1)          | .144 (3.7)                |
| 186                            | 2        | 1.000 (25.4) | 4.921 (125.0) | 1.262 (32.1) | .747 (19.0)           | —                                | .687 (17.4)          | 4.125 (104.8)         | .128 (3.3)                |
| 190                            | 3        | 3.375 (85.7) | 2.562 (65.1)  | 1.262 (32.1) | .775 (19.7)           | 1.350 (34.3)                     | 1.125 (28.6)         | 1.937 (49.2)          | .144 (3.7)                |
| 200                            | 4**      | 2.062 (52.4) | 4.870 (123.7) | 1.468 (37.3) | .741 (18.8)           | 1.312 (33.3)                     | —                    | 4.375 (111.1)         | .144 (3.7)                |
| 201                            | 4        | 3.375 (85.7) | 4.920 (125.0) | 1.262 (32.1) | .775 (19.7)           | 1.343 (34.1)                     | 1.125 (28.6)         | 4.250 (108.6)         | .144 (3.7)                |
| 205                            | 4***     | 2.062 (52.4) | 7.270 (184.7) | 1.468 (37.3) | .741 (18.8)           | 1.312 (33.3)                     | —                    | 6.750 (171.5)         | .144 (3.7)                |
| <b>"N"</b>                     |          |              |               |              |                       |                                  |                      |                       |                           |
| 154                            | 1        | .437 (11.1)  | 1.328 (33.7)  | .483 (12.3)  | .297 (7.5)            | —                                | .250 (6.4)           | .906 (23.0)           | .111 (2.8)                |
| 155                            | 3        | .937 (23.8)  | 1.347 (34.2)  | .483 (12.3)  | .297 (7.5)            | .500 (12.7)                      | —                    | .875 (22.2)           | .128 (3.3)                |
| 156                            | 3        | 1.500 (38.1) | 1.347 (34.2)  | .483 (12.3)  | .297 (7.5)            | .531 (13.5)                      | .562 (14.3)          | .875 (22.2)           | .111 (2.8)                |
| <b>LITHIUM BATTERY HOLDERS</b> |          |              |               |              |                       |                                  |                      |                       |                           |
| 131                            | 1        | .625 (15.9)  | 1.474 (37.4)  | .625 (15.9)  | .437 (11.1)           | —                                | .437 (11.1)          | 1.125 (28.6)          | .111 (2.8)                |
| <b>"15 V"</b>                  |          |              |               |              |                       |                                  |                      |                       |                           |
| 161                            | 1        | 0.75 (19.1)  | 1.625 (41.3)  | .589 (15.0)  | .397 (10.1)           | —                                | .562 (14.3)          | 1.000 (25.4)          | .140 (3.6)                |
| 163                            | 1        | 1.000 (25.4) | 1.750 (44.5)  | 1.250 (31.8) | .488 (12.4)           | —                                | .720 (18.3)          | 1.125 (28.6)          | .140 (3.6)                |
| 167                            | 1*       | 1.125 (28.6) | 1.625 (41.3)  | 1.262 (32.1) | .586 (14.9)           | .593 (15.1)                      | —                    | 1.000 (25.4)          | .128 (3.3)                |
| <b>"22 1/2 V"</b>              |          |              |               |              |                       |                                  |                      |                       |                           |
| 139                            | 1        | .625 (15.9)  | 2.140 (54.4)  | .578 (14.7)  | .392 (10.0)           | —                                | .406 (10.3)          | 1.500 (38.1)          | .111 (2.8)                |
| 168                            | 1        | .750 (19.1)  | 2.336 (59.3)  | .944 (24.0)  | .493 (12.5)           | —                                | .435 (11.1)          | 1.500 (38.1)          | .140 (3.6)                |
| 177                            | 1        | .750 (19.1)  | 2.093 (53.2)  | 1.156 (29.4) | .610 (15.5)           | —                                | .437 (11.1)          | 1.500 (38.1)          | .140 (3.6)                |
| 178                            | 3*       | 1.125 (28.6) | 2.078 (52.8)  | 1.262 (32.1) | .619 (15.72)          | .625 (15.9)                      | —                    | 1.218 (30.9)          | .144 (3.7)                |
| <b>"30 V"</b>                  |          |              |               |              |                       |                                  |                      |                       |                           |
| 183                            | 1        | .750 (19.1)  | 2.687 (68.2)  | 1.156 (29.4) | .613 (15.6)           | —                                | .562 (14.3)          | 1.750 (44.5)          | .111 (2.8)                |
| 184                            | 3*       | 1.125 (28.6) | 2.687 (68.2)  | 1.262 (32.1) | .594 (15.1)           | .625 (15.9)                      | —                    | 1.812 (46.0)          | .144 (3.7)                |

\*1 Clip to holds two batteries in place.

\*\*2 Clips hold four batteries in place.

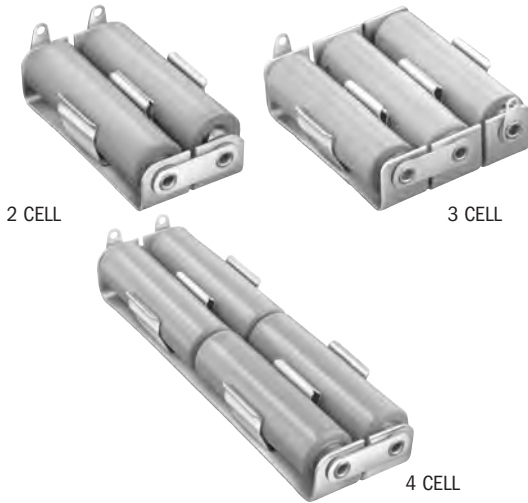
\*\*\*3 Clips hold six batteries in place.

DIMENSIONS ARE FOR REFERENCE ONLY

## ALUMINUM HOLDERS CONNECTED IN SERIES

### ELIMINATES WIRING · LABOR SAVING

Features jumper straps insulated from the Aluminum base. Batteries held in series circuit without need of additional wiring.

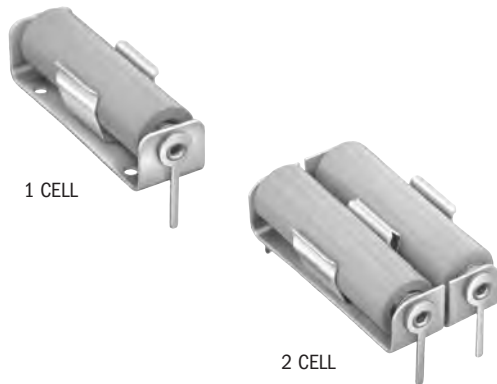


| CAT. NO. | HOLDS NO. OF CELLS | BATTERY CROSS REFERENCE  |  |                    |   |
|----------|--------------------|--|--|--------------------|---|
|          |                    | EVEREADY   | DURACELL   | RAY-O-VAC          | NEDA  |
|          |                    | <b>"AA" CELL HOLDERS</b> ( BATTERY .531 (13.4) O.D. x 1.906 (48.4) L )<br>SIZE .565 (14.5) 1.988 (50.5)  |  |                    |   |
| 146      | 2                  | E9, EV15, EN91, CH15, E133, E133N, E177, 505, 523, 1015, 1215  | ZM9, RM12R, NC15AA, M15F, M15AA, TR133R, TR177, M505, MN1500, PC1500 | 5AA, 615, 815, 7AA | 15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M |
| 147      | 3                  |  |  |                    |   |
| 148      | 4                  |  |  |                    |   |
|          |                    | <b>"C" CELL HOLDERS</b> ( BATTERY .875 (22.2) O.D. x 1.875 (47.6) L )<br>SIZE 1.125 (28.6) 1.969 (50.0)  |  |                    |   |
| 149      | 2                  | CH35, E93, 935, 1235, EV35, EN93   | M14F, M14HD, NC14C, TR286, MN1400, PC1400                            | 1C, 614, 814,      | 14A, 14C, 14D, 14F, 14NC, 1600M   |
| 150      | 3                  |  |  |                    |   |
| 151      | 4                  |  |  |                    |   |
|          |                    | <b>"D" CELL HOLDERS</b> ( BATTERY 1.187 (30.1) O.D. x 2.312 (58.7) L )<br>SIZE 1.375 (34.9) 2.412 (61.3) |  |                    |   |
| 152      | 2                  | CH50, E95, 950, 1250, EV50, EN95   | M13F, NC13D, S42, M13HD, TR289, MN1300, PC1300                       | 2D, 6D, 613, 813   | 13A, 13C, 13D, 13F, 13NC, 1115M, 1810M  |
| 153      | 3                  |  |  |                    |   |
| 158      | 4                  |  |  |                    |   |

## ALUMINUM HOLDERS WITH PC LUGS

### ELIMINATES WIRING · LABOR SAVING

For printed circuitry we have standardized our most popular holders with PC Lugs. Choice of single or multiple holders. "AA" assembled with Cat. No. 4002 lug. "C" and "D" assembled with Cat. No. 4003 lug. (Refer to page 50)

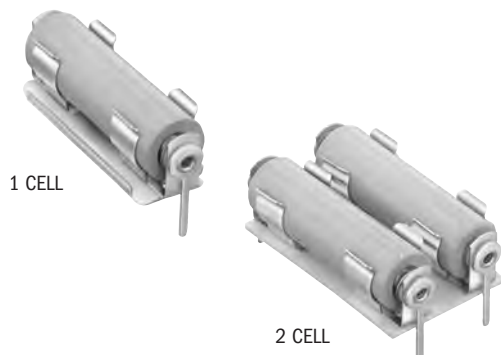


| CAT. NO. | HOLDS NO. OF CELLS | BATTERY CROSS REFERENCE  |  |                    |   |
|----------|--------------------|--|--|--------------------|---|
|          |                    | EVEREADY   | DURACELL   | RAY-O-VAC          | NEDA  |
|          |                    | <b>"AA" CELL HOLDERS</b> ( BATTERY .531 (13.4) O.D. x 1.906 (48.4) L )<br>SIZE .565 (14.5) 1.988 (50.5)  |  |                    |   |
| 2222     | 1                  | E9, EV15, EN91, CH15, E133, E133N, E177, 505, 523, 1015, 1215  | ZM9, RM12R, NC15AA, M15F, M15AA, TR133R, TR177, M505, MN1500, PC1500 | 5AA, 615, 815, 7AA | 15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M |
| 2223     | 2                  |  |  |                    |   |
|          |                    | <b>"C" CELL HOLDERS</b> ( BATTERY .875 (22.2) O.D. x 1.875 (47.6) L )<br>SIZE 1.125 (28.6) 1.969 (50.0)  |  |                    |   |
| 2224     | 1                  | CH35, E93, 935, 1235, EV35, EN93   | M14F, M14HD, NC14C, TR286, MN1400, PC1400                            | 1C, 614, 814,      | 14A, 14C, 14D, 14F, 14NC, 1600M   |
| 2225     | 2                  |  |  |                    |   |
|          |                    | <b>"D" CELL HOLDERS</b> ( BATTERY 1.187 (30.1) O.D. x 2.312 (58.7) L )<br>SIZE 1.375 (34.9) 2.412 (61.3) |  |                    |   |
| 2226     | 1                  | CH50, E95, 950, 1250, EV50, EN95   | M13F, NC13D, S42, M13HD, TR289, MN1300, PC1300                       | 2D, 6D, 613, 813   | 13A, 13C, 13D, 13F, 13NC, 1115M, 1810M  |
| 2227     | 2                  |  |  |                    |   |

## STEEL HOLDERS WITH PC LUGS

### ELIMINATES WIRING · LABOR SAVING



For printed circuitry we have standardized our most popular holders with PC Lugs. Choice of single or multiple holders. "AA" assembled with Cat. No. 4002 lug. "C" and "D" assembled with Cat. No. 4003 lug. (Refer to page 50)




| CAT. NO. | HOLDS NO. OF CELLS | BATTERY CROSS REFERENCE  |  |                    |   |
|----------|--------------------|--|--|--------------------|---|
|          |                    | EVEREADY   | DURACELL   | RAY-O-VAC          | NEDA  |
|          |                    | <b>"AA" CELL HOLDERS</b> ( BATTERY .531 (13.4) O.D. x 1.906 (48.4) L )<br>SIZE .565 (14.5) 1.988 (50.5)  |  |                    |   |
| 2228     | 1                  | E9, EV15, EN91, CH15, E133, E133N, E177, 505, 523, 1015, 1215  | ZM9, RM12R, NC15AA, M15F, M15AA, TR133R, TR177, M505, MN1500, PC1500 | 5AA, 615, 815, 7AA | 15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M |
| 2229     | 2                  |  |  |                    |   |
|          |                    | <b>"C" CELL HOLDERS</b> ( BATTERY .875 (22.2) O.D. x 1.875 (47.6) L )<br>SIZE 1.125 (28.6) 1.969 (50.0)  |  |                    |   |
| 2230     | 1                  | CH35, E93, 935, 1235, EV35, EN93   | M14F, M14HD, NC14C, TR286, MN1400, PC1400                            | 1C, 614, 814,      | 14A, 14C, 14D, 14F, 14NC, 1600M   |
| 2231     | 2                  |  |  |                    |   |
|          |                    | <b>"D" CELL HOLDERS</b> ( BATTERY 1.187 (30.1) O.D. x 2.312 (58.7) L )<br>SIZE 1.375 (34.9) 2.412 (61.3) |  |                    |   |
| 2232     | 1                  | CH50, E95, 950, 1250, EV50, EN95   | M13F, NC13D, S42, M13HD, TR289, MN1300, PC1300                       | 2D, 6D, 613, 813   | 13A, 13C, 13D, 13F, 13NC, 1115M, 1810M  |
| 2233     | 2                  |  |  |                    |   |

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