



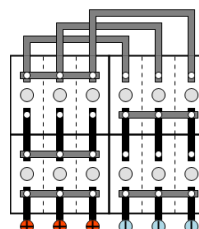
## LBE650P - Cell data sheet

### Classification

|                          |           |
|--------------------------|-----------|
| Brand                    | Alcad     |
| Cell type                | LBE650P   |
| Cell P/N                 | 310547581 |
| Capacity at 5 hours rate | 650 Ah    |
| IEC Designation          | KL650P    |
| According to IEC 60623   |           |



Wiring principle



Crosswise

### Physical data

|                |        |                 |         |
|----------------|--------|-----------------|---------|
| Overall height | 410 mm |                 |         |
| Cell height    | 400 mm |                 |         |
| Width          | 195 mm | Weight per cell | 27,6 Kg |
| Length         | 219 mm |                 |         |

### Construction

|                    |                 |                           |       |
|--------------------|-----------------|---------------------------|-------|
| Container material | Polypropylene   | No. of terminals/polarity | 3     |
| Separator type     | Grid            | Terminal material         | Steel |
| Connection torque  | 30,0 +/- 3,0 Nm | Vent type                 |       |
| Terminal size      | M10 SW 16 mm    |                           |       |
|                    |                 | Handle                    | Yes   |

### Plates

|                |        |                |        |
|----------------|--------|----------------|--------|
| Positive       |        | Negative       |        |
| Type of plates | Pocket | Type of plates | Pocket |

### Electrolyte

|                              |            |                   |       |
|------------------------------|------------|-------------------|-------|
| Electrolyte type: Renewal    | E13        | Max/Min           | 50 mm |
| Electrolyte type: Initial    | E22        | Vent oil quantity |       |
| Electrolyte per cell: Liquid | 7,3 liters |                   |       |

### Connection

|                                          |                    |                              |                    |
|------------------------------------------|--------------------|------------------------------|--------------------|
| Cable area of internal connection cables | 70 mm <sup>2</sup> | End-lug (and external cable) | 35 mm <sup>2</sup> |
|------------------------------------------|--------------------|------------------------------|--------------------|



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### Charging

|                      |             |                         |             |
|----------------------|-------------|-------------------------|-------------|
| Float voltage        | 1,42 V/Cell | High rate voltage (min) | 1,47 V/Cell |
| Single-level voltage | 1,43 V/Cell |                         |             |

### Resistance/Short circuit

|                     |           |                       |        |
|---------------------|-----------|-----------------------|--------|
| Internal resistance | 0,25 mOhm | Short circuit current | 5407 A |
|---------------------|-----------|-----------------------|--------|

### Performance data

#### Current discharge

After prolonged float charge of fully charged cells. Available amperes at +20°C +/- 5°C (+68°F +/- 9°F)

| V/Cell | 10h  | 8h   | 5h   | 3h  | 2h  | 1,5h | 1h  | 30m | 20m | 15m | 10m | 5m  | 1m  | 30s | 5s    | 1s    |
|--------|------|------|------|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|
| 1      | 67,0 | 82,8 | 130  | 208 | 278 | 334  | 428 | 552 | 619 | 665 | 715 | 820 | 910 | 975 | 1.170 | 1.258 |
| 1,05   | 66,4 | 82,5 | 129  | 202 | 252 | 287  | 358 | 467 | 516 | 535 | 595 | 679 | 732 | 800 | 961   | 1.043 |
| 1,1    | 65,0 | 79,7 | 122  | 170 | 213 | 245  | 289 | 364 | 393 | 431 | 474 | 498 | 596 | 650 | 791   | 868   |
| 1,14   | 63,6 | 74,9 | 108  | 147 | 176 | 195  | 225 | 288 | 308 | 320 | 360 | 418 | 486 | 531 | 661   | 732   |
| 1,16   | 59,7 | 68,3 | 93,2 | 126 | 150 | 163  | 185 | 242 | 269 | 291 | 319 | 382 | 443 | 485 | 603   | 668   |

#### Power discharge

Available power (W), after prolonged float charged of fully charged cells at +20°C +/- 5°C (+68°F +/- 9°F)

| V/Cell | 10h  | 8h   | 5h  | 3h  | 2h  | 1,5h | 1h  | 30m | 20m | 15m | 10m | 5m  | 1m  | 30s | 5s    | 1s    |
|--------|------|------|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|
| 1      | 77,6 | 94,6 | 145 | 223 | 290 | 346  | 438 | 558 | 623 | 668 | 716 | 820 | 910 | 975 | 1.170 | 1.258 |
| 1,05   | 77,3 | 95,1 | 146 | 222 | 273 | 308  | 382 | 494 | 544 | 564 | 625 | 713 | 769 | 840 | 1.009 | 1.095 |
| 1,1    | 76,0 | 92,7 | 141 | 192 | 239 | 274  | 321 | 402 | 433 | 475 | 522 | 548 | 656 | 715 | 870   | 954   |
| 1,14   | 74,6 | 87,7 | 126 | 170 | 203 | 224  | 258 | 329 | 352 | 365 | 410 | 477 | 554 | 606 | 754   | 835   |
| 1,16   | 70,1 | 80,3 | 110 | 148 | 175 | 190  | 215 | 281 | 313 | 338 | 370 | 443 | 514 | 562 | 700   | 774   |



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### Kt Factor

#### Current discharge

After prolonged float charge of fully charged cells. Kt factor at +20°C +/- 5°C (+68°F +/- 9°F)

| V/Cell | 10h  | 8h   | 5h   | 3h   | 2h   | 1,5h | 1h   | 30m  | 20m  | 15m  | 10m  | 5m   | 1m   | 30s  | 5s   | 1s   |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1      | 9,7  | 7,85 | 5,00 | 3,12 | 2,34 | 1,95 | 1,52 | 1,18 | 1,05 | 0,98 | 0,91 | 0,79 | 0,71 | 0,67 | 0,56 | 0,52 |
| 1,05   | 9,8  | 7,88 | 5,05 | 3,23 | 2,58 | 2,26 | 1,81 | 1,39 | 1,26 | 1,21 | 1,09 | 0,96 | 0,89 | 0,81 | 0,68 | 0,62 |
| 1,1    | 10,0 | 8,16 | 5,31 | 3,83 | 3,05 | 2,65 | 2,25 | 1,79 | 1,66 | 1,51 | 1,37 | 1,31 | 1,09 | 1,00 | 0,82 | 0,75 |
| 1,14   | 10,2 | 8,68 | 6,04 | 4,42 | 3,69 | 3,33 | 2,89 | 2,26 | 2,11 | 2,03 | 1,81 | 1,55 | 1,34 | 1,22 | 0,98 | 0,89 |
| 1,16   | 10,9 | 9,5  | 6,98 | 5,15 | 4,32 | 3,99 | 3,52 | 2,69 | 2,41 | 2,23 | 2,04 | 1,70 | 1,47 | 1,34 | 1,08 | 0,97 |

#### Power discharge

Kt factor power, after prolonged float charged of fully charged cells at +20°C +/- 5°C (+68°F +/- 9°F)

| V/Cell | 10h  | 8h   | 5h   | 3h   | 2h   | 1,5h | 1h   | 30m  | 20m  | 15m  | 10m  | 5m   | 1m   | 30s  | 5s   | 1s   |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1      | 8,38 | 6,87 | 4,47 | 2,92 | 2,24 | 1,88 | 1,49 | 1,17 | 1,04 | 0,97 | 0,91 | 0,79 | 0,71 | 0,67 | 0,56 | 0,52 |
| 1,05   | 8,41 | 6,83 | 4,45 | 2,93 | 2,38 | 2,11 | 1,70 | 1,32 | 1,19 | 1,15 | 1,04 | 0,91 | 0,85 | 0,77 | 0,64 | 0,59 |
| 1,1    | 8,55 | 7,01 | 4,60 | 3,39 | 2,72 | 2,37 | 2,02 | 1,62 | 1,50 | 1,37 | 1,24 | 1,19 | 0,99 | 0,91 | 0,75 | 0,68 |
| 1,14   | 8,71 | 7,41 | 5,17 | 3,82 | 3,20 | 2,90 | 2,52 | 1,98 | 1,85 | 1,78 | 1,58 | 1,36 | 1,17 | 1,07 | 0,86 | 0,78 |
| 1,16   | 9,27 | 8,09 | 5,94 | 4,41 | 3,71 | 3,43 | 3,03 | 2,31 | 2,08 | 1,93 | 1,76 | 1,47 | 1,26 | 1,16 | 0,93 | 0,84 |