



# HC40P - Cell data sheet

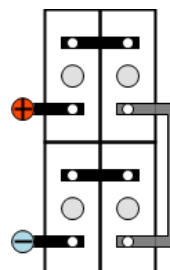
## Classification

|                          |           |
|--------------------------|-----------|
| Brand                    |           |
| Cell type                | HC40P     |
| Cell P/N                 | 310451451 |
| Capacity at 5 hours rate | 40 Ah     |
| IEC Designation          | KH40P     |
| According to             | IEC 60623 |



Wiring principle

Normal



## Physical data

|                |        |                 |        |
|----------------|--------|-----------------|--------|
| Overall height | 357 mm |                 |        |
| Cell height    | 349 mm |                 |        |
| Width          | 192 mm | Weight per cell | 6,5 Kg |
| Length         | 68 mm  |                 |        |

## Construction

|                    |                 |                           |       |
|--------------------|-----------------|---------------------------|-------|
| Container material | Polypropylene   | No. of terminals/polarity | 1     |
| Separator type     | Grid            | Terminal material         | Steel |
| Connection torque  | 20,0 +/- 2,0 Nm | Vent type                 |       |
| Terminal size      | M8 SW 13 mm     |                           |       |
|                    |                 | Handle                    | No    |

## 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 | 2,7 liters |                   |       |

## Connection

|                                          |                    |                              |                    |
|------------------------------------------|--------------------|------------------------------|--------------------|
| Cable area of internal connection cables | 70 mm <sup>2</sup> | End-lug (and external cable) | 50 mm <sup>2</sup> |
|------------------------------------------|--------------------|------------------------------|--------------------|



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### Charging

|                      |             |                         |             |
|----------------------|-------------|-------------------------|-------------|
| Float voltage        | 1,4 V/Cell  | High rate voltage (min) | 1,45 V/Cell |
| Single-level voltage | 1,43 V/Cell |                         |             |

### Resistance/Short circuit

|                     |           |                       |        |
|---------------------|-----------|-----------------------|--------|
| Internal resistance | 0,98 mOhm | Short circuit current | 1398 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      | 4,02 | 5,02 | 8,00 | 13,1 | 19,5 | 25,7 | 37,6 | 69,0 | 92,7 | 108  | 128  | 159  | 206  | 235 | 296 | 325 |
| 1,05   | 3,98 | 4,98 | 7,88 | 13,0 | 19,1 | 25,1 | 36,3 | 65,3 | 80,0 | 92,3 | 109  | 130  | 176  | 200 | 247 | 265 |
| 1,1    | 3,89 | 4,86 | 7,67 | 12,6 | 18,5 | 24,2 | 34,5 | 53,3 | 64,0 | 72,1 | 81,7 | 101  | 138  | 160 | 196 | 220 |
| 1,14   | 3,76 | 4,69 | 7,39 | 12,1 | 17,7 | 22,9 | 30,5 | 41,7 | 49,6 | 55,6 | 63,0 | 77,1 | 111  | 128 | 160 | 168 |
| 1,16   | 3,65 | 4,56 | 7,21 | 11,6 | 16,3 | 20,4 | 24,7 | 34,2 | 41,7 | 45,3 | 50,5 | 63,4 | 93,8 | 107 | 133 | 143 |

#### Engine starting performance

For a fully charged cell by a constant current charge according to IEC 60623 standard at +20°C +/- 5°C (+68°F +/- 9°F), 30 seconds discharge down to 0,85 V

|                   |       |
|-------------------|-------|
| Available amperes | 380 A |
|-------------------|-------|

#### 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      | 4,86 | 6,07 | 9,6  | 15,6 | 23,0 | 29,1 | 40,8 | 71,7 | 94,8 | 110  | 129  | 159  | 206 | 235 | 296 | 325 |
| 1,05   | 4,82 | 6,03 | 9,41 | 15,4 | 22,6 | 28,8 | 40,4 | 70,4 | 85,4 | 97,9 | 116  | 136  | 184 | 210 | 259 | 278 |
| 1,1    | 4,70 | 5,88 | 9,17 | 15,0 | 21,9 | 28,1 | 39,2 | 59,6 | 71,1 | 79,9 | 90,2 | 111  | 152 | 176 | 216 | 242 |
| 1,14   | 4,54 | 5,68 | 8,83 | 14,4 | 20,9 | 26,8 | 35,3 | 47,9 | 56,8 | 63,6 | 71,9 | 87,8 | 126 | 146 | 182 | 192 |
| 1,16   | 4,42 | 5,52 | 8,61 | 13,8 | 19,2 | 24,0 | 28,9 | 39,8 | 48,4 | 52,7 | 58,6 | 73,6 | 109 | 124 | 155 | 166 |

#### Engine starting performance

For a fully charged cell by a constant current charge according to IEC 60623 standard at +20°C +/- 5°C (+68°F +/- 9°F), 30 seconds discharge down to 0,85 V

|                   |       |
|-------------------|-------|
| Available amperes | 380 A |
|-------------------|-------|



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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      | 10,0 | 7,97 | 5,00 | 3,04 | 2,05 | 1,56 | 1,06 | 0,58 | 0,43 | 0,37 | 0,31 | 0,25 | 0,19 | 0,17 | 0,14 | 0,12 |
| 1,05   | 10,0 | 8,03 | 5,08 | 3,08 | 2,09 | 1,59 | 1,10 | 0,61 | 0,50 | 0,43 | 0,37 | 0,31 | 0,23 | 0,20 | 0,16 | 0,15 |
| 1,1    | 10,3 | 8,24 | 5,21 | 3,17 | 2,16 | 1,65 | 1,16 | 0,75 | 0,63 | 0,55 | 0,49 | 0,40 | 0,29 | 0,25 | 0,20 | 0,18 |
| 1,14   | 10,7 | 8,52 | 5,41 | 3,30 | 2,26 | 1,74 | 1,31 | 0,96 | 0,81 | 0,72 | 0,64 | 0,52 | 0,36 | 0,31 | 0,25 | 0,24 |
| 1,16   | 11,0 | 8,77 | 5,55 | 3,44 | 2,46 | 1,96 | 1,62 | 1,17 | 0,96 | 0,88 | 0,79 | 0,63 | 0,43 | 0,37 | 0,30 | 0,28 |

#### Engine starting performance

For a fully charged cell by a constant current charge according to IEC 60623 standard at +20°C +/- 5°C (+68°F +/- 9°F), 30 seconds discharge down to 0,85 V

Available amperes 380 A

#### 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      | 8,23 | 6,58 | 4,18 | 2,57 | 1,74 | 1,37 | 0,98 | 0,56 | 0,42 | 0,36 | 0,31 | 0,25 | 0,19 | 0,17 | 0,14 | 0,12 |
| 1,05   | 8,30 | 6,64 | 4,25 | 2,60 | 1,77 | 1,39 | 0,99 | 0,57 | 0,47 | 0,41 | 0,35 | 0,29 | 0,22 | 0,19 | 0,15 | 0,14 |
| 1,1    | 8,51 | 6,81 | 4,36 | 2,68 | 1,83 | 1,42 | 1,02 | 0,67 | 0,56 | 0,50 | 0,44 | 0,36 | 0,26 | 0,23 | 0,19 | 0,17 |
| 1,14   | 8,80 | 7,04 | 4,53 | 2,78 | 1,91 | 1,49 | 1,13 | 0,84 | 0,70 | 0,63 | 0,56 | 0,46 | 0,32 | 0,27 | 0,22 | 0,21 |
| 1,16   | 9,06 | 7,25 | 4,64 | 2,90 | 2,08 | 1,66 | 1,38 | 1,00 | 0,83 | 0,76 | 0,68 | 0,54 | 0,37 | 0,32 | 0,26 | 0,24 |

#### Engine starting performance

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

Available amperes 380 A