

# NCFP

Nickel Cadmium Fibre Plate



Technical Manual



**KZLNIFE**

## HBL NIFE Power Systems Limited

HBL NIFE is the largest manufacturer of specialized batteries in India. HBL's vision is to organize India's engineering talent into globally competitive manufacturing strength. The business strategy continues to focus on engineering intensive industrial products rather than brand driver or commodity products. Specialized batteries and electronics for aviation, defence, railways, telecom and heavy industry have been the focus.

HBL has an unusually strong commitment to R & D and has developed capability to network Indian and foreign talent to overcome technology gaps in scientifically innovative ways. HBL has also been equally successful in working with foreign licenses when such licenses do not restrict export market access.

Among the many such products, of particular interest (reflecting the level of R&D capability) are:

- Lithium Thermal and Reserve Batteries
- Torpedo Batteries
- Aircraft Sintered Plate NiCad Batteries
- Aircraft Batteries in Pure Lead and Tin Technologies

The company can offer its customers the most appropriate technology based on their requirement, covering Nickel Cadmium, Silver-Zinc, Lead Acid, and Lithium Batteries, Chargers for rechargeable batteries are also manufactured in both TR and SMR versions from 24 V to 220 V. The company has sales of about US \$ 50 million and very substantial design and development capabilities.

## Nickel Cadmium Fibre Electrode Batteries

Nickel Cadmium Fibre electrode batteries may be seen as 3rd generation (1980's) technology. Pocket plate is 1st generation (19 90) and Sintered Plate is 2nd generation (1950's). The Fibre Electrode Technology has been provided to HBLNIFE in 1998 by DAUG, Germany (research venture of Mercedes Benz & Volkswagen) HBLNIFE is the only licensee of DAUG in Asia.

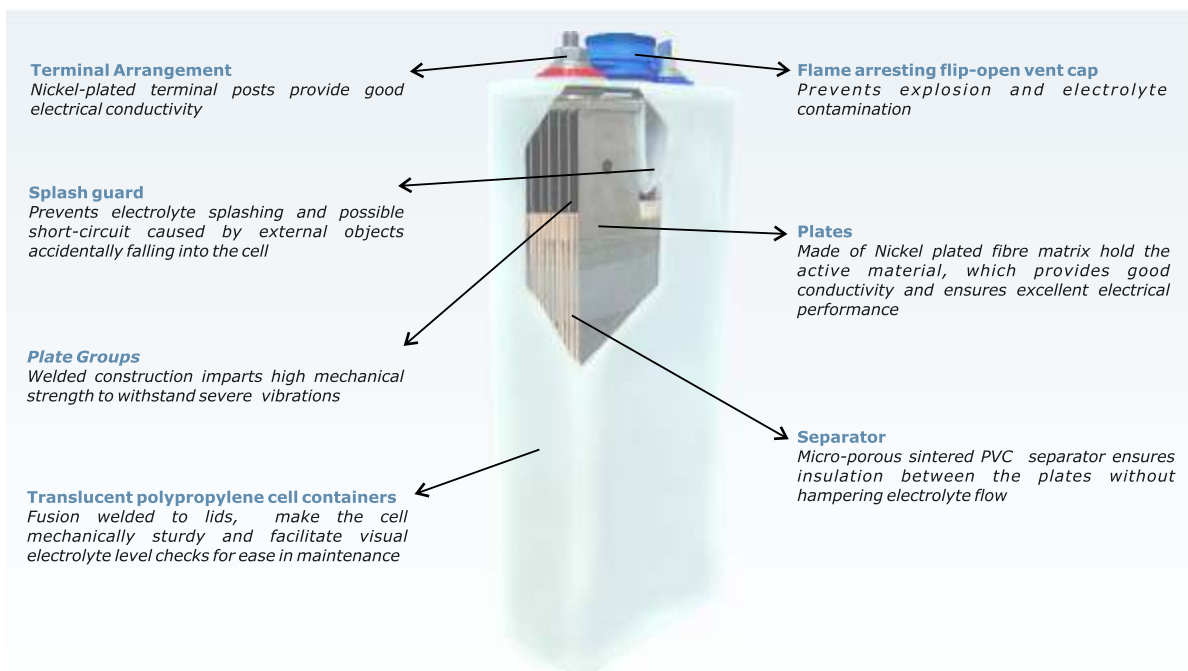
The Nickel Cadmium Fibre Plate batteries are designed by HBLNIFE to give different performance rates such as LMH & X type, to suit customers requirements, both in single cells & Block cells.

The Nickel Cadmium Electrode employed in the NCFP batteries allows 90% of the Electrode Volume available for the active material. The three dimensional fibre structure provides a very high conducting density and ensures that the active material is accessed during current collection, thereby giving an excellent electrical performance. The benefits of the above are seen in low internal resistance, high rates of discharge, and improved recharge capability.

The NCFP battery electrode technology uses active material free from Graphite and iron. Absence of graphite prevents internal carbonate formation and absence of iron reduces maintenance.

The elastic nature of NCFP electrode enables it to absorb greater shock and vibration stresses. This includes volume changes during charge and discharge cycles, hence the battery can give more than 3000 cycles. The NCFP has the greatest variable capacity and is considerably lighter in weight.

## Cut view of Single Cell



## KFL-range single cell capacities and dimensions

| Cell type | Container size reference | Capacity at 5 hour rate | Cell dimension in mm |       |        | Cell connection bolt(s) size | Approximate weight of the cell (Kg) | Approximate electrolyte volume between the level marks (L) |
|-----------|--------------------------|-------------------------|----------------------|-------|--------|------------------------------|-------------------------------------|------------------------------------------------------------|
|           |                          |                         | Height               | Width | Length |                              |                                     |                                                            |
| KFL 20P   | S1                       | 20                      | 229                  | 86    | 46     | M8                           | 1.1                                 | 0.12                                                       |
| KFL 30P   | S3                       | 30                      | 239                  | 134   | 44     | M8                           | 1.7                                 | 0.18                                                       |
| KFL 38P   | S3                       | 38                      | 239                  | 134   | 44     | M8                           | 1.8                                 | 0.18                                                       |
| KFL 50P   | S4                       | 50                      | 289                  | 134   | 59     | M10                          | 3.1                                 | 0.24                                                       |
| KFL 60P   | S4                       | 60                      | 289                  | 134   | 59     | M10                          | 3.2                                 | 0.24                                                       |
| KFL 70P   | S4                       | 70                      | 289                  | 134   | 59     | M10                          | 4.2                                 | 0.24                                                       |
| KFL 85P   | S5                       | 85                      | 374                  | 134   | 74     | M10                          | 4.9                                 | 0.50                                                       |
| KFL 100P  | S5                       | 100                     | 374                  | 134   | 74     | M10                          | 5.1                                 | 0.50                                                       |
| KFL 125P  | S5                       | 125                     | 374                  | 134   | 74     | M10                          | 5.4                                 | 0.50                                                       |
| KFL 140P  | S6                       | 140                     | 391                  | 134   | 101    | M10                          | 6.9                                 | 0.70                                                       |
| KFL 150P  | S6                       | 150                     | 391                  | 134   | 101    | M10                          | 7.1                                 | 0.70                                                       |
| KFL 175P  | S6                       | 175                     | 391                  | 134   | 101    | M10                          | 7.2                                 | 0.70                                                       |
| KFL 190P  | S6                       | 190                     | 391                  | 134   | 101    | M10                          | 7.4                                 | 0.70                                                       |
| KFL 200P  | S6                       | 200                     | 391                  | 134   | 101    | M10                          | 7.5                                 | 0.70                                                       |
| KFL 230P  | S6                       | 230                     | 391                  | 134   | 101    | M10                          | 7.6                                 | 0.70                                                       |
| KFL 255P  | S6                       | 255                     | 391                  | 134   | 101    | M10                          | 7.7                                 | 0.70                                                       |
| KFL 290P  | S7                       | 290                     | 417                  | 159   | 107    | 2 X M10                      | 10.0                                | 0.82                                                       |
| KFL 330P  | S7                       | 330                     | 417                  | 159   | 107    | 2 X M10                      | 10.2                                | 0.82                                                       |
| KFL 350P  | S7                       | 350                     | 417                  | 159   | 107    | 2 X M10                      | 10.3                                | 0.82                                                       |
| KFL 370P  | S7                       | 370                     | 417                  | 159   | 107    | 2 X M10                      | 10.4                                | 0.82                                                       |
| KFL 410P  | S8                       | 410                     | 443                  | 163   | 166    | 2 X M10                      | 16.0                                | 1.67                                                       |
| KFL 450P  | S8                       | 450                     | 443                  | 163   | 166    | 2 X M10                      | 16.2                                | 1.67                                                       |
| KFL 460P  | S8                       | 460                     | 443                  | 163   | 166    | 2 X M10                      | 16.3                                | 1.67                                                       |
| KFL 500P  | S8                       | 500                     | 443                  | 163   | 166    | 2 X M10                      | 16.5                                | 1.67                                                       |
| KFL 520P  | S8                       | 520                     | 443                  | 163   | 166    | 2 X M10                      | 16.6                                | 1.67                                                       |
| KFL 530P  | S8                       | 530                     | 443                  | 163   | 166    | 2 X M10                      | 16.7                                | 1.67                                                       |
| KFL 540P  | S8                       | 540                     | 443                  | 163   | 166    | 2 X M10                      | 16.9                                | 1.67                                                       |

## KFM-range single cell capacities and dimensions

| Cell type | Container size reference | Capacity at 5 hour rate | Cell dimension in mm |       |        | Cell connection bolt(s) size | Approximate weight of the cell (Kg) | Approximate electrolyte volume between the level marks (L) |
|-----------|--------------------------|-------------------------|----------------------|-------|--------|------------------------------|-------------------------------------|------------------------------------------------------------|
|           |                          |                         | Height               | Width | Length |                              |                                     |                                                            |
| KFM 11P   | S1                       | 11                      | 229                  | 86    | 46     | M8                           | 1.2                                 | 0.12                                                       |
| KFM 21P   | S1                       | 21                      | 229                  | 86    | 46     | M8                           | 1.3                                 | 0.12                                                       |
| KFM 28P   | S2                       | 28                      | 229                  | 86    | 61     | M8                           | 1.7                                 | 0.16                                                       |
| KFM 35P   | S3                       | 35                      | 239                  | 134   | 44     | M8                           | 1.9                                 | 0.18                                                       |
| KFM 49P   | S4                       | 49                      | 289                  | 134   | 59     | M10                          | 3.4                                 | 0.24                                                       |
| KFM 65P   | S4                       | 65                      | 289                  | 134   | 59     | M10                          | 3.6                                 | 0.24                                                       |
| KFM 72P   | S4                       | 72                      | 289                  | 134   | 59     | M10                          | 3.7                                 | 0.24                                                       |
| KFM 83P   | S5                       | 83                      | 374                  | 134   | 74     | M10                          | 5.5                                 | 0.50                                                       |
| KFM 96P   | S5                       | 96                      | 374                  | 134   | 74     | M10                          | 5.7                                 | 0.50                                                       |
| KFM 120P  | S5                       | 120                     | 374                  | 134   | 74     | M10                          | 5.8                                 | 0.50                                                       |
| KFM 125P  | S5                       | 125                     | 374                  | 134   | 74     | M10                          | 5.9                                 | 0.50                                                       |
| KFM 136P  | S6                       | 136                     | 391                  | 134   | 101    | 2 x M10                      | 7.7                                 | 0.70                                                       |
| KFM 145P  | S6                       | 145                     | 391                  | 134   | 101    | 2 x M10                      | 7.9                                 | 0.70                                                       |
| KFM 160P  | S6                       | 160                     | 391                  | 134   | 101    | 2 x M10                      | 8.0                                 | 0.70                                                       |
| KFM 168P  | S6                       | 168                     | 391                  | 134   | 101    | 2 x M10                      | 8.1                                 | 0.70                                                       |
| KFM 192P  | S6                       | 192                     | 391                  | 134   | 101    | 2 x M10                      | 8.2                                 | 0.70                                                       |
| KFM 210P  | S6                       | 210                     | 391                  | 134   | 101    | 2 x M10                      | 8.3                                 | 0.70                                                       |
| KFM 245P  | S6                       | 245                     | 391                  | 134   | 101    | 2 x M10                      | 8.4                                 | 0.70                                                       |
| KFM 255P  | S6                       | 255                     | 391                  | 134   | 101    | 2 x M10                      | 8.5                                 | 0.70                                                       |
| KFM 288P  | S7                       | 288                     | 417                  | 159   | 107    | 2 x M10                      | 11.0                                | 0.82                                                       |
| KFM 300P  | S7                       | 300                     | 417                  | 159   | 107    | 2 x M10                      | 11.2                                | 0.82                                                       |
| KFM 315P  | S7                       | 315                     | 417                  | 159   | 107    | 2 x M10                      | 11.3                                | 0.82                                                       |
| KFM 329P  | S7                       | 329                     | 417                  | 159   | 107    | 2 x M10                      | 11.4                                | 0.82                                                       |
| KFM 342P  | S7                       | 342                     | 417                  | 159   | 107    | 2 x M10                      | 11.5                                | 0.82                                                       |
| KFM 365P  | S8                       | 365                     | 443                  | 163   | 166    | 2 x M10                      | 17.5                                | 1.67                                                       |
| KFM 380P  | S8                       | 380                     | 443                  | 163   | 166    | 2 x M10                      | 17.7                                | 1.67                                                       |
| KFM 420P  | S8                       | 420                     | 443                  | 163   | 166    | 2 x M10                      | 17.8                                | 1.67                                                       |
| KFM 455P  | S8                       | 455                     | 443                  | 163   | 166    | 2 x M10                      | 17.9                                | 1.67                                                       |
| KFM 464P  | S8                       | 464                     | 443                  | 163   | 166    | 2 x M10                      | 18.0                                | 1.67                                                       |
| KFM 470P  | S8                       | 470                     | 443                  | 163   | 166    | 2 x M10                      | 18.1                                | 1.67                                                       |
| KFM 490P  | S8                       | 490                     | 443                  | 163   | 166    | 2 x M10                      | 18.2                                | 1.67                                                       |
| KFM 500P  | S8                       | 500                     | 443                  | 163   | 166    | 2 x M10                      | 18.4                                | 1.67                                                       |
| KFM 525P  | S8                       | 525                     | 443                  | 163   | 166    | 2 x M10                      | 18.5                                | 1.67                                                       |
| KFM 530P  | S8                       | 530                     | 443                  | 163   | 166    | 2 x M10                      | 18.6                                | 1.67                                                       |
| KFM 541P  | S8                       | 541                     | 443                  | 163   | 166    | 2 x M10                      | 18.7                                | 1.67                                                       |

## KFH-range single cell capacities and dimensions

| Cell type | Container size reference | Capacity at 5 hour rate | Cell dimension in mm |       |        | Cell connection bolt(s) size | Approximate weight of the cell (Kg) | Approximate electrolyte volume between the level marks (L) |
|-----------|--------------------------|-------------------------|----------------------|-------|--------|------------------------------|-------------------------------------|------------------------------------------------------------|
|           |                          |                         | Height               | Width | Length |                              |                                     |                                                            |
| KFH 11P   | S1                       | 11                      | 229                  | 86    | 46     | M8                           | 1.2                                 | 0.12                                                       |
| KFH 12P   | S1                       | 12                      | 229                  | 86    | 46     | M8                           | 1.3                                 | 0.12                                                       |
| KFH 17P   | S2                       | 17                      | 229                  | 86    | 61     | M8                           | 1.6                                 | 0.16                                                       |
| KFH 26P   | S3                       | 26                      | 239                  | 134   | 44     | M8                           | 2.0                                 | 0.18                                                       |
| KFH 35P   | S4                       | 35                      | 289                  | 134   | 59     | M10                          | 3.3                                 | 0.24                                                       |
| KFH 45P   | S4                       | 45                      | 289                  | 134   | 59     | M10                          | 3.4                                 | 0.24                                                       |
| KFH 50P   | S4                       | 50                      | 289                  | 134   | 59     | M10                          | 3.6                                 | 0.24                                                       |
| KFH 56P   | S4                       | 56                      | 289                  | 134   | 59     | M10                          | 3.6                                 | 0.24                                                       |
| KFH 60P   | S4                       | 60                      | 289                  | 134   | 59     | M10                          | 3.7                                 | 0.24                                                       |
| KFH 75P   | S5                       | 75                      | 374                  | 134   | 74     | M10                          | 5.5                                 | 0.50                                                       |
| KFH 80P   | S5                       | 80                      | 374                  | 134   | 74     | M10                          | 5.7                                 | 0.50                                                       |
| KFH 90P   | S6                       | 90                      | 391                  | 134   | 101    | 2 X M10                      | 7.4                                 | 0.70                                                       |
| KFH 100P  | S6                       | 100                     | 391                  | 134   | 101    | 2 X M10                      | 7.6                                 | 0.70                                                       |
| KFH 120P  | S6                       | 120                     | 391                  | 134   | 101    | 2 X M10                      | 7.9                                 | 0.70                                                       |
| KFH 135P  | S7                       | 135                     | 417                  | 159   | 107    | 2 X M10                      | 10.2                                | 0.82                                                       |
| KFH 140P  | S7                       | 140                     | 417                  | 159   | 107    | 2 X M10                      | 10.3                                | 0.82                                                       |
| KFH 145P  | S7                       | 145                     | 417                  | 159   | 107    | 2 X M10                      | 10.4                                | 0.82                                                       |
| KFH 160P  | S7                       | 160                     | 417                  | 159   | 107    | 2 X M10                      | 10.5                                | 0.82                                                       |
| KFH 180P  | S7                       | 180                     | 417                  | 159   | 107    | 2 X M10                      | 10.6                                | 0.82                                                       |
| KFH 200P  | S7                       | 200                     | 417                  | 159   | 107    | 2 X M10                      | 10.7                                | 0.82                                                       |
| KFH 220P  | S8                       | 220                     | 443                  | 163   | 166    | 2 X M10                      | 16.5                                | 1.67                                                       |
| KFH 235P  | S8                       | 235                     | 443                  | 163   | 166    | 2 X M10                      | 16.7                                | 1.67                                                       |
| KFH 250P  | S8                       | 250                     | 443                  | 163   | 166    | 2 X M10                      | 16.8                                | 1.67                                                       |
| KFH 255P  | S8                       | 255                     | 443                  | 163   | 166    | 2 X M10                      | 16.9                                | 1.67                                                       |
| KFH 260P  | S8                       | 260                     | 443                  | 163   | 166    | 2 X M10                      | 17.0                                | 1.67                                                       |
| KFH 276P  | S8                       | 276                     | 443                  | 163   | 166    | 2 X M10                      | 17.1                                | 1.67                                                       |
| KFH 300P  | S8                       | 300                     | 443                  | 163   | 166    | 2 X M10                      | 17.5                                | 1.67                                                       |

## KFX-range cell capacities and dimensions

| Cell type | Container size reference | Capacity at 5 hour rate | Cell dimension in mm |       |        | Cell connection bolt(s) size | Approximate weight of the cell (Kg) | Approximate electrolyte volume between the level marks (L) |
|-----------|--------------------------|-------------------------|----------------------|-------|--------|------------------------------|-------------------------------------|------------------------------------------------------------|
|           |                          |                         | Height               | Width | Length |                              |                                     |                                                            |
| KFX 11 P  | S2                       | 11                      | 229                  | 86    | 61     | M8                           | 1.5                                 | 0.16                                                       |
| KFX 16 P  | S3                       | 16                      | 239                  | 134   | 44     | M8                           | 1.8                                 | 0.18                                                       |
| KFX 25 P  | S4                       | 25                      | 289                  | 134   | 59     | M10                          | 3.3                                 | 0.24                                                       |
| KFX 38 P  | S5                       | 38                      | 374                  | 134   | 74     | M10                          | 5.0                                 | 0.50                                                       |
| KFX 45 P  | S5                       | 45                      | 374                  | 134   | 74     | M10                          | 5.5                                 | 0.50                                                       |
| KFX 60 P* | B31-1                    | 60                      | 349                  | 195   | 183    | M10                          | 17.6                                | 1.60                                                       |
| KFX 75 P* | B31-1                    | 75                      | 349                  | 195   | 183    | M10                          | 18.2                                | 1.60                                                       |
| KFX 90 P* | B31-1                    | 90                      | 349                  | 195   | 183    | M10                          | 18.3                                | 1.60                                                       |
| KFX 100 P | S7                       | 100                     | 417                  | 159   | 107    | 2 x M10                      | 10.5                                | 0.82                                                       |
| KFX 120 P | S7                       | 120                     | 417                  | 159   | 107    | 2 x M10                      | 10.8                                | 0.82                                                       |

\*Two Cell Block (2.4V)

## Performance data - KFL-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.14V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour | 8 hour | 10 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| KFL 20P   | 20       | 16     | 14     | 13     | 12     | 8      | 6      | 4      | 2      | 2.0     |
| KFL 30P   | 30       | 25     | 22     | 20     | 18     | 12     | 9      | 6      | 4      | 2.9     |
| KFL 38P   | 38       | 31     | 27     | 25     | 22     | 16     | 11     | 7      | 5      | 3.7     |
| KFL 50P   | 50       | 41     | 36     | 33     | 30     | 21     | 15     | 9      | 6      | 4.9     |
| KFL 60P   | 60       | 49     | 43     | 40     | 35     | 25     | 18     | 11     | 7      | 5.9     |
| KFL 70P   | 70       | 57     | 50     | 47     | 41     | 29     | 21     | 13     | 8      | 6.9     |
| KFL 85P   | 85       | 70     | 61     | 57     | 50     | 35     | 25     | 15     | 10     | 8.3     |
| KFL 100P  | 100      | 81     | 71     | 67     | 59     | 41     | 30     | 19     | 12     | 9.8     |
| KFL 125P  | 125      | 101    | 89     | 83     | 74     | 51     | 37     | 23     | 15     | 12.3    |
| KFL 140P  | 140      | 113    | 99     | 93     | 83     | 57     | 41     | 26     | 17     | 13.7    |
| KFL 150P  | 150      | 122    | 107    | 100    | 89     | 62     | 44     | 28     | 18     | 14.7    |
| KFL 175P  | 175      | 142    | 124    | 117    | 103    | 72     | 52     | 32     | 21     | 17.2    |
| KFL 190P  | 190      | 154    | 135    | 127    | 112    | 78     | 56     | 35     | 23     | 18.6    |
| KFL 200P  | 200      | 162    | 142    | 133    | 118    | 82     | 59     | 37     | 24     | 19.6    |
| KFL 230P  | 230      | 186    | 163    | 153    | 136    | 94     | 68     | 43     | 28     | 22.5    |
| KFL 255P  | 255      | 207    | 181    | 170    | 150    | 105    | 75     | 47     | 31     | 25.0    |
| KFL 290P  | 290      | 235    | 206    | 193    | 171    | 119    | 86     | 54     | 35     | 28.4    |
| KFL 330P  | 330      | 267    | 234    | 220    | 195    | 135    | 98     | 61     | 40     | 32.4    |
| KFL 350P  | 350      | 284    | 249    | 233    | 207    | 144    | 104    | 65     | 42     | 34.3    |
| KFL 370P  | 370      | 300    | 263    | 247    | 218    | 152    | 109    | 69     | 45     | 36.3    |
| KFL 410P  | 410      | 332    | 291    | 273    | 242    | 168    | 121    | 76     | 50     | 40.2    |
| KFL 450P  | 450      | 365    | 320    | 300    | 266    | 185    | 133    | 83     | 54     | 44.1    |
| KFL 460P  | 460      | 373    | 327    | 307    | 271    | 189    | 136    | 85     | 56     | 45.1    |
| KFL 500P  | 500      | 405    | 355    | 333    | 295    | 205    | 148    | 93     | 60     | 49.0    |
| KFL 520P  | 520      | 421    | 369    | 347    | 307    | 213    | 154    | 96     | 63     | 51.0    |
| KFL 530P  | 530      | 429    | 376    | 353    | 313    | 217    | 157    | 98     | 64     | 52.0    |
| KFL 540P  | 540      | 437    | 383    | 360    | 319    | 221    | 160    | 100    | 65     | 52.9    |

## Performance data - KFL-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.10V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour | 8 hour | 10 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| KFL 20P   | 20       | 18     | 17     | 14     | 13     | 9      | 6      | 4      | 2      | 2.0     |
| KFL 30P   | 30       | 28     | 25     | 22     | 20     | 13     | 9      | 6      | 4      | 3.0     |
| KFL 38P   | 38       | 35     | 32     | 27     | 25     | 16     | 12     | 7      | 5      | 3.8     |
| KFL 50P   | 50       | 46     | 42     | 36     | 33     | 22     | 16     | 10     | 6      | 5.0     |
| KFL 60P   | 60       | 55     | 50     | 43     | 40     | 26     | 19     | 11     | 7      | 6.0     |
| KFL 70P   | 70       | 64     | 58     | 50     | 46     | 30     | 22     | 13     | 9      | 7.0     |
| KFL 85P   | 85       | 78     | 71     | 61     | 56     | 37     | 27     | 16     | 10     | 8.5     |
| KFL 100P  | 100      | 91     | 82     | 72     | 66     | 43     | 32     | 19     | 12     | 10.0    |
| KFL 125P  | 125      | 114    | 103    | 90     | 83     | 54     | 39     | 24     | 15     | 12.5    |
| KFL 140P  | 140      | 127    | 115    | 101    | 92     | 60     | 44     | 27     | 17     | 14.0    |
| KFL 150P  | 150      | 137    | 123    | 108    | 99     | 65     | 47     | 29     | 19     | 15.0    |
| KFL 175P  | 175      | 159    | 144    | 126    | 116    | 75     | 55     | 33     | 22     | 17.5    |
| KFL 190P  | 190      | 173    | 156    | 137    | 125    | 82     | 60     | 36     | 23     | 19.0    |
| KFL 200P  | 200      | 182    | 165    | 144    | 132    | 86     | 63     | 38     | 25     | 20.0    |
| KFL 230P  | 230      | 209    | 189    | 166    | 152    | 99     | 73     | 44     | 28     | 23.0    |
| KFL 255P  | 255      | 232    | 210    | 184    | 168    | 110    | 80     | 48     | 31     | 25.5    |
| KFL 290P  | 290      | 264    | 239    | 209    | 191    | 125    | 91     | 55     | 36     | 29.0    |
| KFL 330P  | 330      | 300    | 272    | 238    | 218    | 142    | 104    | 63     | 41     | 33.0    |
| KFL 350P  | 350      | 319    | 288    | 252    | 231    | 151    | 110    | 67     | 43     | 35.0    |
| KFL 370P  | 370      | 337    | 305    | 266    | 244    | 159    | 117    | 70     | 46     | 37.0    |
| KFL 410P  | 410      | 373    | 337    | 295    | 271    | 176    | 129    | 78     | 51     | 41.0    |
| KFL 450P  | 450      | 410    | 370    | 324    | 297    | 194    | 142    | 86     | 56     | 45.0    |
| KFL 460P  | 460      | 419    | 379    | 331    | 304    | 198    | 145    | 87     | 57     | 46.0    |
| KFL 500P  | 500      | 455    | 412    | 360    | 330    | 215    | 158    | 95     | 62     | 50.0    |
| KFL 520P  | 520      | 473    | 428    | 374    | 343    | 224    | 164    | 99     | 64     | 52.0    |
| KFL 530P  | 530      | 482    | 436    | 382    | 350    | 228    | 167    | 101    | 65     | 53.0    |
| KFL 540P  | 540      | 491    | 444    | 389    | 356    | 232    | 170    | 103    | 67     | 54.0    |

## Performance data - KFL-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.05V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour | 8 hour | 10 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| KFL 20P   | 20       | 21     | 19     | 16     | 14     | 9      | 6      | 4      | 3      | 2.0     |
| KFL 30P   | 30       | 31     | 28     | 23     | 21     | 14     | 10     | 6      | 4      | 3.0     |
| KFL 38P   | 38       | 40     | 35     | 30     | 27     | 17     | 12     | 7      | 5      | 3.8     |
| KFL 50P   | 50       | 52     | 47     | 39     | 36     | 23     | 16     | 10     | 6      | 5.0     |
| KFL 60P   | 60       | 62     | 56     | 47     | 43     | 28     | 19     | 12     | 8      | 6.0     |
| KFL 70P   | 70       | 73     | 65     | 55     | 50     | 32     | 22     | 14     | 9      | 7.0     |
| KFL 85P   | 85       | 88     | 79     | 66     | 60     | 39     | 27     | 17     | 11     | 8.6     |
| KFL 100P  | 100      | 103    | 92     | 78     | 71     | 46     | 32     | 20     | 13     | 10.1    |
| KFL 125P  | 125      | 129    | 115    | 98     | 89     | 58     | 40     | 25     | 16     | 12.6    |
| KFL 140P  | 140      | 144    | 129    | 109    | 99     | 64     | 45     | 28     | 18     | 14.1    |
| KFL 150P  | 150      | 155    | 138    | 117    | 107    | 69     | 48     | 29     | 19     | 15.1    |
| KFL 175P  | 175      | 180    | 161    | 137    | 124    | 81     | 56     | 34     | 22     | 17.6    |
| KFL 190P  | 190      | 196    | 175    | 148    | 135    | 87     | 61     | 37     | 24     | 19.1    |
| KFL 200P  | 200      | 206    | 184    | 156    | 142    | 92     | 64     | 39     | 25     | 20.1    |
| KFL 230P  | 230      | 237    | 212    | 179    | 163    | 106    | 74     | 45     | 29     | 23.1    |
| KFL 255P  | 255      | 263    | 235    | 199    | 181    | 117    | 82     | 50     | 32     | 25.7    |
| KFL 290P  | 290      | 299    | 267    | 226    | 206    | 133    | 93     | 57     | 37     | 29.2    |
| KFL 330P  | 330      | 340    | 304    | 257    | 234    | 152    | 106    | 65     | 42     | 33.2    |
| KFL 350P  | 350      | 361    | 322    | 273    | 249    | 161    | 112    | 69     | 44     | 35.2    |
| KFL 370P  | 370      | 381    | 340    | 289    | 263    | 170    | 119    | 73     | 47     | 37.2    |
| KFL 410P  | 410      | 422    | 377    | 320    | 291    | 189    | 131    | 81     | 52     | 41.2    |
| KFL 450P  | 450      | 464    | 414    | 351    | 320    | 207    | 144    | 88     | 57     | 45.3    |
| KFL 460P  | 460      | 474    | 423    | 359    | 327    | 212    | 147    | 90     | 58     | 46.3    |
| KFL 500P  | 500      | 515    | 460    | 390    | 355    | 230    | 160    | 98     | 63     | 50.3    |
| KFL 520P  | 520      | 536    | 478    | 406    | 369    | 239    | 167    | 102    | 65     | 52.3    |
| KFL 530P  | 530      | 546    | 488    | 413    | 376    | 244    | 170    | 104    | 67     | 53.3    |
| KFL 540P  | 540      | 556    | 497    | 421    | 383    | 248    | 173    | 106    | 68     | 54.3    |

## Performance data - KFL-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.00V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour | 8 hour | 10 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| KFL 20P   | 20       | 23     | 20     | 17     | 16     | 10     | 7      | 4      | 3      | 2.0     |
| KFL 30P   | 30       | 35     | 30     | 26     | 24     | 15     | 10     | 6      | 4      | 3.1     |
| KFL 38P   | 38       | 44     | 38     | 32     | 30     | 18     | 12     | 8      | 5      | 3.9     |
| KFL 50P   | 50       | 58     | 50     | 43     | 40     | 24     | 16     | 10     | 6      | 5.1     |
| KFL 60P   | 60       | 70     | 59     | 51     | 47     | 29     | 20     | 12     | 8      | 6.1     |
| KFL 70P   | 70       | 81     | 69     | 60     | 55     | 34     | 23     | 14     | 9      | 7.1     |
| KFL 85P   | 85       | 99     | 84     | 72     | 67     | 41     | 28     | 17     | 11     | 8.7     |
| KFL 100P  | 100      | 115    | 98     | 85     | 79     | 49     | 33     | 20     | 13     | 10.2    |
| KFL 125P  | 125      | 144    | 123    | 106    | 99     | 61     | 41     | 25     | 16     | 12.7    |
| KFL 140P  | 140      | 161    | 137    | 119    | 111    | 68     | 46     | 28     | 18     | 14.3    |
| KFL 150P  | 150      | 173    | 147    | 128    | 117    | 73     | 49     | 30     | 19     | 15.1    |
| KFL 175P  | 175      | 201    | 172    | 149    | 137    | 85     | 57     | 35     | 22     | 17.7    |
| KFL 190P  | 190      | 219    | 186    | 162    | 148    | 92     | 62     | 38     | 24     | 19.2    |
| KFL 200P  | 200      | 230    | 196    | 170    | 156    | 97     | 65     | 40     | 25     | 20.2    |
| KFL 230P  | 230      | 265    | 225    | 196    | 179    | 112    | 75     | 46     | 29     | 23.2    |
| KFL 255P  | 255      | 293    | 250    | 217    | 199    | 124    | 83     | 51     | 32     | 25.7    |
| KFL 290P  | 290      | 334    | 284    | 247    | 226    | 141    | 94     | 58     | 37     | 29.3    |
| KFL 330P  | 330      | 380    | 323    | 281    | 257    | 160    | 107    | 66     | 42     | 33.3    |
| KFL 350P  | 350      | 403    | 343    | 298    | 273    | 170    | 114    | 70     | 44     | 35.3    |
| KFL 370P  | 370      | 426    | 363    | 315    | 289    | 179    | 121    | 74     | 47     | 37.3    |
| KFL 410P  | 410      | 472    | 402    | 349    | 320    | 199    | 134    | 82     | 52     | 41.4    |
| KFL 450P  | 450      | 518    | 441    | 383    | 351    | 218    | 147    | 90     | 57     | 45.4    |
| KFL 460P  | 460      | 529    | 451    | 391    | 359    | 223    | 150    | 92     | 58     | 46.4    |
| KFL 500P  | 500      | 575    | 490    | 425    | 390    | 243    | 163    | 100    | 63     | 50.5    |
| KFL 520P  | 520      | 598    | 510    | 442    | 406    | 252    | 169    | 104    | 66     | 52.5    |
| KFL 530P  | 530      | 610    | 519    | 451    | 413    | 257    | 173    | 106    | 67     | 53.5    |
| KFL 540P  | 540      | 621    | 529    | 459    | 421    | 262    | 176    | 108    | 68     | 54.5    |

## Performance data - KFM-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.14 V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|
| KFM 11P   | 11       | 12     | 10     | 8.8    | 8      | 5      | 3      | 2.1    |
| KFM 21P   | 21       | 23     | 19     | 16.8   | 15     | 9      | 6      | 4.0    |
| KFM 28P   | 28       | 31     | 25     | 22.4   | 20     | 12     | 8      | 5.3    |
| KFM 35P   | 35       | 39     | 32     | 28     | 26     | 15     | 11     | 6.7    |
| KFM 49P   | 49       | 54     | 44     | 39     | 36     | 22     | 15     | 9.3    |
| KFM 65P   | 65       | 72     | 59     | 52     | 47     | 29     | 20     | 12.4   |
| KFM 72P   | 72       | 79     | 65     | 58     | 53     | 32     | 22     | 13.7   |
| KFM 83P   | 83       | 91     | 75     | 66     | 61     | 37     | 25     | 15.8   |
| KFM 96P   | 96       | 106    | 86     | 77     | 70     | 42     | 29     | 18.2   |
| KFM 120P  | 120      | 131    | 107    | 96     | 88     | 53     | 36     | 22.8   |
| KFM 125P  | 125      | 136    | 111    | 100    | 91     | 55     | 38     | 23.8   |
| KFM 136P  | 136      | 148    | 121    | 109    | 99     | 60     | 41     | 25.8   |
| KFM 145P  | 145      | 158    | 129    | 116    | 106    | 64     | 44     | 27.6   |
| KFM 160P  | 160      | 174    | 142    | 128    | 117    | 70     | 48     | 30.4   |
| KFM 168P  | 168      | 183    | 150    | 134    | 123    | 74     | 51     | 31.9   |
| KFM 192P  | 192      | 209    | 171    | 154    | 140    | 84     | 58     | 36.5   |
| KFM 210P  | 210      | 229    | 187    | 168    | 153    | 92     | 63     | 39.9   |
| KFM 245P  | 245      | 267    | 218    | 196    | 179    | 108    | 74     | 46.6   |
| KFM 255P  | 255      | 278    | 227    | 204    | 186    | 112    | 77     | 48.5   |
| KFM 288P  | 288      | 314    | 256    | 230    | 210    | 127    | 87     | 54.7   |
| KFM 300P  | 300      | 327    | 267    | 240    | 219    | 132    | 90     | 57.0   |
| KFM 315P  | 315      | 343    | 280    | 252    | 230    | 139    | 95     | 59.9   |
| KFM 329P  | 329      | 359    | 293    | 263    | 240    | 145    | 99     | 62.4   |
| KFM 342P  | 342      | 373    | 304    | 274    | 250    | 150    | 103    | 65.0   |
| KFM 365P  | 365      | 398    | 325    | 292    | 266    | 161    | 110    | 69.4   |
| KFM 380P  | 380      | 414    | 338    | 304    | 277    | 167    | 114    | 72.2   |
| KFM 420P  | 420      | 458    | 374    | 336    | 307    | 185    | 126    | 79.8   |
| KFM 455P  | 455      | 496    | 405    | 364    | 332    | 200    | 137    | 86.5   |
| KFM 464P  | 464      | 506    | 413    | 371    | 339    | 204    | 140    | 88.2   |
| KFM 470P  | 470      | 512    | 418    | 376    | 343    | 207    | 141    | 89.3   |
| KFM 490P  | 490      | 534    | 436    | 392    | 358    | 216    | 147    | 93.1   |
| KFM 500P  | 500      | 545    | 445    | 400    | 365    | 220    | 151    | 95.0   |
| KFM 525P  | 525      | 572    | 467    | 420    | 383    | 231    | 158    | 99.8   |
| KFM 530P  | 530      | 578    | 472    | 424    | 387    | 233    | 160    | 100.7  |
| KFM 541P  | 541      | 590    | 481    | 433    | 395    | 238    | 163    | 102.8  |



## Performance data - KFM-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.10 V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|
| KFM 11P   | 11       | 13     | 12     | 9.1    | 8.6    | 5      | 3.4    | 2.2    |
| KFM 21P   | 21       | 26     | 22     | 17.4   | 17     | 10     | 7      | 4.1    |
| KFM 28P   | 28       | 34     | 29     | 23.2   | 22     | 13     | 9      | 5.5    |
| KFM 35P   | 35       | 43     | 37     | 29     | 28     | 16     | 11     | 6.9    |
| KFM 49P   | 49       | 60     | 51     | 41     | 39     | 23     | 15     | 9.6    |
| KFM 65P   | 65       | 80     | 68     | 54     | 51     | 30     | 20     | 12.7   |
| KFM 72P   | 72       | 88     | 76     | 60     | 57     | 33     | 23     | 14.1   |
| KFM 83P   | 83       | 102    | 87     | 69     | 66     | 38     | 26     | 16.3   |
| KFM 96P   | 96       | 118    | 101    | 80     | 76     | 44     | 30     | 18.8   |
| KFM 120P  | 120      | 146    | 125    | 100    | 95     | 55     | 38     | 23.5   |
| KFM 125P  | 125      | 152    | 130    | 104    | 99     | 58     | 39     | 24.5   |
| KFM 136P  | 136      | 165    | 141    | 113    | 107    | 63     | 43     | 26.7   |
| KFM 145P  | 145      | 176    | 151    | 120    | 115    | 67     | 46     | 28.4   |
| KFM 160P  | 160      | 194    | 166    | 133    | 126    | 74     | 50     | 31.4   |
| KFM 168P  | 168      | 204    | 175    | 139    | 133    | 77     | 53     | 32.9   |
| KFM 192P  | 192      | 233    | 200    | 159    | 152    | 88     | 60     | 37.6   |
| KFM 210P  | 210      | 255    | 218    | 174    | 166    | 97     | 66     | 41.2   |
| KFM 245P  | 245      | 298    | 255    | 203    | 194    | 113    | 77     | 48.0   |
| KFM 255P  | 255      | 310    | 265    | 212    | 201    | 117    | 80     | 50.0   |
| KFM 288P  | 288      | 350    | 300    | 239    | 228    | 132    | 91     | 56.4   |
| KFM 300P  | 300      | 365    | 312    | 249    | 237    | 138    | 95     | 58.8   |
| KFM 315P  | 315      | 383    | 328    | 261    | 249    | 145    | 99     | 61.7   |
| KFM 329P  | 329      | 400    | 342    | 273    | 260    | 151    | 104    | 64.5   |
| KFM 342P  | 342      | 416    | 356    | 284    | 270    | 157    | 108    | 67.0   |
| KFM 365P  | 365      | 443    | 380    | 303    | 288    | 168    | 115    | 71.5   |
| KFM 380P  | 380      | 462    | 395    | 315    | 300    | 175    | 120    | 74.5   |
| KFM 420P  | 420      | 510    | 437    | 349    | 332    | 193    | 132    | 82.3   |
| KFM 455P  | 455      | 553    | 473    | 378    | 359    | 209    | 143    | 89.2   |
| KFM 464P  | 464      | 564    | 483    | 385    | 367    | 213    | 146    | 90.9   |
| KFM 470P  | 470      | 571    | 489    | 390    | 371    | 216    | 148    | 92.1   |
| KFM 490P  | 490      | 595    | 510    | 407    | 387    | 225    | 154    | 96.0   |
| KFM 500P  | 500      | 608    | 520    | 415    | 395    | 230    | 158    | 98.0   |
| KFM 525P  | 525      | 638    | 546    | 436    | 415    | 242    | 165    | 103.0  |
| KFM 530P  | 530      | 644    | 551    | 440    | 419    | 244    | 167    | 104.0  |
| KFM 541P  | 541      | 657    | 563    | 449    | 427    | 249    | 170    | 106.0  |



## Performance data - KFM-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.05 V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|
| KFM 11P   | 11       | 16     | 13     | 11     | 10     | 5      | 4      | 2.2    |
| KFM 21P   | 21       | 30     | 26     | 20     | 19     | 10     | 7      | 4.2    |
| KFM 28P   | 28       | 41     | 34     | 27     | 25     | 13     | 9      | 5.5    |
| KFM 35P   | 35       | 51     | 43     | 34     | 31     | 17     | 11     | 6.9    |
| KFM 49P   | 49       | 71     | 60     | 48     | 44     | 24     | 16     | 9.7    |
| KFM 65P   | 65       | 94     | 79     | 63     | 58     | 31     | 21     | 12.9   |
| KFM 72P   | 72       | 104    | 88     | 70     | 64     | 35     | 23     | 14.3   |
| KFM 83P   | 83       | 120    | 101    | 81     | 74     | 40     | 27     | 16.4   |
| KFM 96P   | 96       | 139    | 117    | 93     | 86     | 46     | 31     | 19.0   |
| KFM 120P  | 120      | 173    | 145    | 116    | 107    | 58     | 39     | 23.8   |
| KFM 125P  | 125      | 180    | 151    | 121    | 112    | 60     | 41     | 24.8   |
| KFM 136P  | 136      | 196    | 165    | 132    | 122    | 65     | 44     | 26.9   |
| KFM 145P  | 145      | 209    | 175    | 141    | 130    | 70     | 47     | 28.7   |
| KFM 160P  | 160      | 230    | 194    | 155    | 143    | 77     | 52     | 31.7   |
| KFM 168P  | 168      | 242    | 203    | 163    | 150    | 81     | 54     | 33.3   |
| KFM 192P  | 192      | 276    | 232    | 186    | 172    | 92     | 62     | 38.0   |
| KFM 210P  | 210      | 302    | 254    | 204    | 188    | 101    | 68     | 41.6   |
| KFM 245P  | 245      | 353    | 296    | 238    | 219    | 118    | 79     | 48.5   |
| KFM 255P  | 255      | 367    | 309    | 247    | 228    | 121    | 83     | 50.5   |
| KFM 288P  | 288      | 415    | 348    | 279    | 258    | 137    | 93     | 57.0   |
| KFM 300P  | 300      | 432    | 363    | 291    | 269    | 143    | 97     | 59.4   |
| KFM 315P  | 315      | 454    | 381    | 306    | 282    | 150    | 102    | 62.4   |
| KFM 329P  | 329      | 474    | 398    | 319    | 294    | 156    | 107    | 65.1   |
| KFM 342P  | 342      | 492    | 414    | 332    | 306    | 162    | 111    | 67.7   |
| KFM 365P  | 365      | 526    | 442    | 354    | 327    | 173    | 118    | 72.3   |
| KFM 380P  | 380      | 547    | 460    | 369    | 340    | 181    | 123    | 75.2   |
| KFM 420P  | 420      | 605    | 508    | 407    | 376    | 200    | 136    | 83.2   |
| KFM 455P  | 455      | 655    | 551    | 441    | 407    | 216    | 147    | 90.1   |
| KFM 464P  | 464      | 668    | 561    | 450    | 415    | 220    | 150    | 91.9   |
| KFM 470P  | 470      | 677    | 569    | 456    | 421    | 223    | 152    | 93.1   |
| KFM 490P  | 490      | 706    | 593    | 475    | 439    | 233    | 159    | 97.0   |
| KFM 500P  | 500      | 720    | 605    | 485    | 448    | 238    | 162    | 99.0   |
| KFM 525P  | 525      | 756    | 635    | 509    | 470    | 249    | 170    | 104.0  |
| KFM 530P  | 530      | 763    | 641    | 514    | 474    | 252    | 172    | 105.0  |
| KFM 541P  | 541      | 779    | 655    | 525    | 484    | 257    | 175    | 107.0  |

## Performance data - KFM-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.00 V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|
| KFM 11P   | 11       | 18     | 16     | 11     | 10     | 5      | 4      | 2.2    |
| KFM 21P   | 21       | 35     | 30     | 22     | 19     | 10     | 7      | 4.2    |
| KFM 28P   | 28       | 46     | 40     | 29     | 26     | 14     | 9      | 5.6    |
| KFM 35P   | 35       | 58     | 50     | 36     | 32     | 17     | 12     | 7.0    |
| KFM 49P   | 49       | 81     | 70     | 51     | 45     | 24     | 16     | 9.8    |
| KFM 65P   | 65       | 107    | 93     | 67     | 60     | 32     | 21     | 13.0   |
| KFM 72P   | 72       | 119    | 103    | 74     | 66     | 35     | 24     | 14.4   |
| KFM 83P   | 83       | 137    | 119    | 85     | 76     | 41     | 27     | 16.6   |
| KFM 96P   | 96       | 158    | 137    | 99     | 88     | 47     | 32     | 19.2   |
| KFM 120P  | 120      | 197    | 170    | 124    | 110    | 59     | 40     | 24.0   |
| KFM 125P  | 125      | 205    | 178    | 129    | 115    | 61     | 41     | 25.0   |
| KFM 136P  | 136      | 223    | 193    | 140    | 125    | 67     | 45     | 27.2   |
| KFM 145P  | 145      | 238    | 206    | 149    | 133    | 71     | 48     | 29.0   |
| KFM 160P  | 160      | 262    | 227    | 165    | 147    | 78     | 53     | 32.0   |
| KFM 168P  | 168      | 276    | 239    | 173    | 155    | 82     | 55     | 33.6   |
| KFM 192P  | 192      | 315    | 273    | 198    | 177    | 94     | 63     | 38.4   |
| KFM 210P  | 210      | 344    | 298    | 216    | 193    | 103    | 69     | 42.0   |
| KFM 245P  | 245      | 402    | 348    | 252    | 225    | 120    | 81     | 49.0   |
| KFM 255P  | 255      | 418    | 362    | 263    | 235    | 125    | 84     | 51.0   |
| KFM 288P  | 288      | 472    | 409    | 297    | 265    | 141    | 95     | 57.6   |
| KFM 300P  | 300      | 492    | 426    | 309    | 276    | 147    | 99     | 60.0   |
| KFM 315P  | 315      | 517    | 447    | 324    | 290    | 154    | 104    | 63.0   |
| KFM 329P  | 329      | 540    | 467    | 339    | 303    | 161    | 109    | 65.8   |
| KFM 342P  | 342      | 561    | 486    | 352    | 315    | 168    | 113    | 68.4   |
| KFM 365P  | 365      | 599    | 518    | 376    | 336    | 179    | 120    | 73.0   |
| KFM 380P  | 380      | 623    | 540    | 391    | 350    | 186    | 125    | 76.0   |
| KFM 420P  | 420      | 689    | 596    | 433    | 386    | 206    | 139    | 84.0   |
| KFM 455P  | 455      | 746    | 646    | 469    | 419    | 223    | 150    | 91.0   |
| KFM 464P  | 464      | 761    | 659    | 478    | 427    | 227    | 153    | 92.8   |
| KFM 470P  | 470      | 771    | 667    | 484    | 432    | 230    | 155    | 94.0   |
| KFM 490P  | 490      | 804    | 696    | 505    | 451    | 240    | 162    | 98.0   |
| KFM 500P  | 500      | 820    | 710    | 515    | 460    | 245    | 165    | 100.0  |
| KFM 525P  | 525      | 861    | 746    | 541    | 483    | 257    | 173    | 105.0  |
| KFM 530P  | 530      | 869    | 753    | 546    | 488    | 260    | 175    | 106.0  |
| KFM 541P  | 541      | 887    | 768    | 557    | 498    | 265    | 179    | 108.0  |

## Performance data - KFH-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.14 V/cell

| Cell type | Capacity<br>Ah | 10<br>sec | 30<br>sec | 1<br>min | 5<br>min | 10<br>min | 20<br>min | 30<br>min | 60<br>min | 90<br>min | 2<br>hour | 3<br>hour | 5<br>hour |
|-----------|----------------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| KFH 11P   | 11             | 58        | 50        | 43       | 28       | 22        | 16        | 13        | 9         | 6         | 5         | 3         | 2.0       |
| KFH 12P   | 12             | 63        | 54        | 47       | 30       | 24        | 18        | 15        | 10        | 7         | 5         | 4         | 2.2       |
| KFH 17P   | 17             | 89        | 77        | 66       | 43       | 34        | 25        | 21        | 14        | 10        | 8         | 5         | 3.2       |
| KFH 26P   | 26             | 137       | 118       | 101      | 65       | 52        | 38        | 32        | 21        | 15        | 11        | 8         | 4.8       |
| KFH 35P   | 35             | 184       | 159       | 137      | 88       | 70        | 52        | 43        | 29        | 20        | 16        | 11        | 6.5       |
| KFH 45P   | 45             | 236       | 204       | 176      | 113      | 90        | 67        | 55        | 37        | 26        | 20        | 14        | 8.4       |
| KFH 50P   | 50             | 263       | 227       | 195      | 125      | 100       | 74        | 61        | 41        | 29        | 22        | 15        | 9.3       |
| KFH 56P   | 56             | 294       | 254       | 218      | 140      | 112       | 83        | 68        | 46        | 32        | 25        | 17        | 10.4      |
| KFH 60P   | 60             | 315       | 272       | 234      | 150      | 120       | 89        | 73        | 49        | 34        | 27        | 18        | 11.2      |
| KFH 75P   | 75             | 394       | 341       | 293      | 188      | 150       | 111       | 92        | 62        | 43        | 33        | 23        | 14.0      |
| KFH 80P   | 80             | 420       | 363       | 312      | 200      | 160       | 118       | 98        | 66        | 46        | 35        | 24        | 14.9      |
| KFH 90P   | 90             | 473       | 409       | 351      | 225      | 180       | 133       | 110       | 74        | 52        | 40        | 27        | 16.7      |
| KFH 100P  | 100            | 525       | 454       | 390      | 250      | 200       | 148       | 122       | 82        | 57        | 44        | 30        | 18.6      |
| KFH 120P  | 120            | 630       | 545       | 468      | 300      | 240       | 178       | 146       | 98        | 69        | 53        | 36        | 22.3      |
| KFH 135P  | 135            | 709       | 613       | 527      | 338      | 270       | 200       | 165       | 111       | 77        | 60        | 41        | 25.1      |
| KFH 140P  | 140            | 735       | 636       | 546      | 350      | 280       | 207       | 171       | 115       | 80        | 62        | 42        | 26.1      |
| KFH 145P  | 145            | 761       | 658       | 566      | 363      | 290       | 215       | 177       | 119       | 83        | 64        | 44        | 27.0      |
| KFH 160P  | 160            | 840       | 726       | 624      | 400      | 320       | 237       | 195       | 131       | 92        | 71        | 48        | 29.8      |
| KFH 180P  | 180            | 945       | 817       | 702      | 450      | 360       | 266       | 220       | 148       | 103       | 80        | 55        | 33.5      |
| KFH 200P  | 200            | 1008      | 860       | 720      | 480      | 390       | 294       | 242       | 164       | 115       | 89        | 61        | 37.4      |
| KFH 220P  | 220            | 1155      | 999       | 792      | 550      | 440       | 326       | 268       | 180       | 126       | 97        | 67        | 40.9      |
| KFH 235P  | 235            | 1234      | 1067      | 917      | 588      | 470       | 348       | 287       | 193       | 135       | 104       | 71        | 43.7      |
| KFH 250P  | 250            | 1313      | 1135      | 975      | 625      | 500       | 370       | 305       | 205       | 143       | 111       | 76        | 46.5      |
| KFH 255P  | 255            | 1339      | 1158      | 995      | 638      | 510       | 377       | 311       | 209       | 146       | 113       | 77        | 47.4      |
| KFH 260P  | 260            | 1365      | 1180      | 1014     | 650      | 520       | 385       | 317       | 213       | 149       | 115       | 79        | 48.4      |
| KFH 276P  | 276            | 1449      | 1253      | 1076     | 690      | 552       | 408       | 337       | 226       | 158       | 122       | 84        | 51.3      |
| KFH 300P  | 300            | 1575      | 1362      | 1170     | 750      | 600       | 444       | 366       | 246       | 172       | 133       | 91        | 55.8      |

## Performance data - KFH-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.10 V/cell

| Cell type | Capacity<br>Ah | 10<br>sec | 30<br>sec | 1<br>min | 5<br>min | 10<br>min | 20<br>min | 30<br>min | 60<br>min | 90<br>min | 2<br>hour | 3<br>hour | 5<br>hour |
|-----------|----------------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| KFH 11P   | 11             | 64        | 58        | 51       | 33       | 26        | 19        | 17        | 10        | 7         | 5         | 3         | 2.1       |
| KFH 12P   | 12             | 70        | 64        | 55       | 36       | 29        | 21        | 18        | 10        | 7         | 6         | 4         | 2.3       |
| KFH 17P   | 17             | 99        | 90        | 78       | 51       | 41        | 30        | 26        | 15        | 10        | 8         | 5         | 3.2       |
| KFH 26P   | 26             | 151       | 138       | 120      | 78       | 62        | 46        | 39        | 23        | 16        | 12        | 8         | 5.0       |
| KFH 35P   | 35             | 203       | 186       | 161      | 105      | 84        | 62        | 53        | 30        | 21        | 16        | 11        | 6.7       |
| KFH 45P   | 45             | 261       | 239       | 207      | 135      | 108       | 80        | 68        | 39        | 27        | 21        | 14        | 8.6       |
| KFH 50P   | 50             | 290       | 265       | 230      | 150      | 120       | 89        | 75        | 44        | 30        | 23        | 16        | 9.6       |
| KFH 56P   | 56             | 325       | 297       | 258      | 168      | 134       | 99        | 84        | 49        | 34        | 26        | 18        | 10.7      |
| KFH 60P   | 60             | 348       | 318       | 276      | 180      | 144       | 106       | 90        | 52        | 36        | 28        | 19        | 11.5      |
| KFH 75P   | 75             | 435       | 398       | 345      | 225      | 180       | 133       | 113       | 65        | 45        | 35        | 24        | 14.3      |
| KFH 80P   | 80             | 464       | 424       | 368      | 240      | 192       | 142       | 120       | 70        | 48        | 37        | 25        | 15.3      |
| KFH 90P   | 90             | 522       | 477       | 414      | 270      | 216       | 159       | 135       | 78        | 55        | 42        | 28        | 17.2      |
| KFH 100P  | 100            | 580       | 530       | 460      | 300      | 240       | 177       | 150       | 87        | 61        | 46        | 31        | 19.1      |
| KFH 120P  | 120            | 696       | 636       | 552      | 360      | 288       | 212       | 180       | 104       | 73        | 55        | 38        | 22.9      |
| KFH 135P  | 135            | 783       | 716       | 621      | 405      | 324       | 239       | 203       | 117       | 82        | 62        | 42        | 25.8      |
| KFH 140P  | 140            | 812       | 742       | 644      | 420      | 336       | 248       | 210       | 122       | 85        | 65        | 44        | 26.7      |
| KFH 145P  | 145            | 841       | 769       | 667      | 435      | 348       | 257       | 218       | 126       | 88        | 67        | 46        | 27.7      |
| KFH 160P  | 160            | 928       | 848       | 736      | 480      | 384       | 283       | 240       | 139       | 97        | 74        | 50        | 30.6      |
| KFH 180P  | 180            | 1044      | 954       | 828      | 540      | 432       | 319       | 270       | 157       | 109       | 83        | 57        | 34.4      |
| KFH 200P  | 200            | 1100      | 980       | 900      | 580      | 460       | 352       | 290       | 174       | 121       | 92        | 63        | 38.2      |
| KFH 220P  | 220            | 1276      | 1166      | 1012     | 660      | 528       | 389       | 330       | 191       | 133       | 102       | 69        | 42.0      |
| KFH 235P  | 235            | 1363      | 1246      | 1081     | 705      | 564       | 416       | 353       | 204       | 142       | 109       | 74        | 44.9      |
| KFH 250P  | 250            | 1450      | 1325      | 1150     | 750      | 600       | 443       | 375       | 218       | 152       | 116       | 79        | 47.8      |
| KFH 255P  | 255            | 1479      | 1352      | 1173     | 765      | 612       | 451       | 383       | 222       | 155       | 118       | 80        | 48.7      |
| KFH 260P  | 260            | 1508      | 1378      | 1196     | 780      | 624       | 460       | 390       | 226       | 158       | 120       | 82        | 49.7      |
| KFH 276P  | 276            | 1601      | 1463      | 1270     | 828      | 662       | 489       | 414       | 240       | 167       | 128       | 87        | 52.7      |
| KFH 300P  | 300            | 1740      | 1590      | 1380     | 900      | 720       | 531       | 450       | 261       | 182       | 139       | 94        | 57.3      |

## Performance data - KFH-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.05V/cell

| Cell type | Capacity<br>Ah | 10<br>sec | 30<br>sec | 1<br>min | 5<br>min | 10<br>min | 20<br>min | 30<br>min | 60<br>min | 90<br>min | 2<br>hour | 3<br>hour | 5<br>hour |
|-----------|----------------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| KFH 11P   | 11             | 80        | 68        | 61       | 40       | 33        | 24        | 18        | 10        | 7         | 5         | 4         | 2         |
| KFH 12P   | 12             | 88        | 74        | 66       | 43       | 36        | 27        | 20        | 11        | 8         | 6         | 4         | 2         |
| KFH 17P   | 17             | 124       | 105       | 94       | 61       | 51        | 38        | 28        | 15        | 11        | 8         | 6         | 3         |
| KFH 26P   | 26             | 190       | 161       | 143      | 94       | 78        | 58        | 43        | 24        | 16        | 12        | 8         | 5         |
| KFH 35P   | 35             | 256       | 217       | 193      | 126      | 105       | 78        | 58        | 32        | 22        | 17        | 11        | 7         |
| KFH 45P   | 45             | 329       | 279       | 248      | 162      | 135       | 100       | 74        | 41        | 28        | 22        | 15        | 9         |
| KFH 50P   | 50             | 365       | 310       | 275      | 180      | 150       | 111       | 83        | 46        | 32        | 24        | 16        | 10        |
| KFH 56P   | 56             | 409       | 347       | 308      | 202      | 168       | 124       | 92        | 51        | 35        | 27        | 18        | 11        |
| KFH 60P   | 60             | 438       | 372       | 330      | 216      | 180       | 133       | 99        | 55        | 38        | 29        | 20        | 12        |
| KFH 75P   | 75             | 548       | 465       | 413      | 270      | 225       | 167       | 124       | 68        | 47        | 36        | 24        | 15        |
| KFH 80P   | 80             | 584       | 496       | 440      | 288      | 240       | 178       | 132       | 73        | 50        | 38        | 26        | 16        |
| KFH 90P   | 90             | 657       | 558       | 495      | 324      | 270       | 200       | 149       | 82        | 57        | 43        | 29        | 18        |
| KFH 100P  | 100            | 730       | 620       | 550      | 360      | 300       | 222       | 165       | 91        | 63        | 48        | 33        | 20        |
| KFH 120P  | 120            | 876       | 744       | 660      | 432      | 360       | 266       | 198       | 109       | 76        | 58        | 39        | 24        |
| KFH 135P  | 135            | 986       | 837       | 743      | 486      | 405       | 300       | 223       | 123       | 85        | 65        | 44        | 27        |
| KFH 140P  | 140            | 1022      | 868       | 770      | 504      | 420       | 311       | 231       | 127       | 88        | 67        | 46        | 28        |
| KFH 145P  | 145            | 1059      | 899       | 798      | 522      | 435       | 322       | 239       | 132       | 91        | 70        | 47        | 29        |
| KFH 160P  | 160            | 1168      | 992       | 880      | 576      | 480       | 355       | 264       | 146       | 101       | 77        | 52        | 32        |
| KFH 180P  | 180            | 1314      | 1116      | 990      | 648      | 540       | 400       | 297       | 164       | 113       | 86        | 59        | 35        |
| KFH 200P  | 200            | 1380      | 1160      | 1084     | 680      | 580       | 438       | 326       | 182       | 126       | 96        | 65        | 39        |
| KFH 220P  | 220            | 1606      | 1364      | 1210     | 792      | 660       | 488       | 363       | 200       | 139       | 106       | 72        | 43        |
| KFH 235P  | 235            | 1716      | 1457      | 1293     | 846      | 705       | 522       | 388       | 214       | 148       | 113       | 76        | 46        |
| KFH 250P  | 250            | 1825      | 1550      | 1375     | 900      | 750       | 555       | 413       | 228       | 158       | 120       | 81        | 49        |
| KFH 255P  | 255            | 1862      | 1581      | 1403     | 918      | 765       | 566       | 421       | 232       | 161       | 122       | 83        | 50        |
| KFH 260P  | 260            | 1898      | 1612      | 1430     | 936      | 780       | 577       | 429       | 237       | 164       | 125       | 85        | 51        |
| KFH 276P  | 276            | 2015      | 1711      | 1518     | 994      | 828       | 613       | 455       | 251       | 174       | 132       | 90        | 54        |
| KFH 300P  | 300            | 2190      | 1860      | 1650     | 1080     | 900       | 666       | 495       | 273       | 189       | 144       | 98        | 59        |

## Performance data - KFH-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.00V/cell

| Cell type | Capacity<br>Ah | 10<br>sec | 30<br>sec | 1<br>min | 5<br>min | 10<br>min | 20<br>min | 30<br>min | 60<br>min | 90<br>min | 2<br>hour | 3<br>hour | 5<br>hour |
|-----------|----------------|-----------|-----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| KFH 11P   | 11             | 90        | 78        | 68       | 50       | 38        | 26        | 19        | 10        | 7         | 5         | 4         | 2         |
| KFH 12P   | 12             | 98        | 85        | 74       | 54       | 41        | 28        | 21        | 11        | 8         | 6         | 4         | 2         |
| KFH 17P   | 17             | 139       | 121       | 105      | 77       | 58        | 40        | 30        | 16        | 11        | 8         | 6         | 3         |
| KFH 26P   | 26             | 213       | 185       | 161      | 118      | 89        | 61        | 46        | 24        | 17        | 13        | 9         | 5         |
| KFH 35P   | 35             | 287       | 249       | 217      | 159      | 120       | 82        | 62        | 33        | 23        | 17        | 12        | 7         |
| KFH 45P   | 45             | 369       | 320       | 279      | 204      | 154       | 106       | 79        | 42        | 29        | 22        | 15        | 9         |
| KFH 50P   | 50             | 410       | 355       | 310      | 227      | 171       | 118       | 88        | 47        | 32        | 24        | 16        | 10        |
| KFH 56P   | 56             | 459       | 398       | 347      | 254      | 192       | 132       | 99        | 53        | 36        | 27        | 18        | 11        |
| KFH 60P   | 60             | 492       | 426       | 372      | 272      | 205       | 141       | 106       | 56        | 39        | 29        | 20        | 12        |
| KFH 75P   | 75             | 615       | 533       | 465      | 340      | 257       | 176       | 132       | 71        | 48        | 37        | 25        | 15        |
| KFH 80P   | 80             | 656       | 568       | 496      | 362      | 274       | 188       | 141       | 75        | 51        | 39        | 26        | 16        |
| KFH 90P   | 90             | 738       | 639       | 558      | 408      | 308       | 212       | 158       | 85        | 58        | 44        | 30        | 18        |
| KFH 100P  | 100            | 820       | 710       | 620      | 453      | 342       | 235       | 176       | 94        | 64        | 49        | 33        | 20        |
| KFH 120P  | 120            | 984       | 852       | 744      | 544      | 410       | 282       | 211       | 113       | 77        | 59        | 39        | 24        |
| KFH 135P  | 135            | 1107      | 959       | 837      | 612      | 462       | 317       | 238       | 127       | 87        | 66        | 44        | 27        |
| KFH 140P  | 140            | 1148      | 994       | 868      | 634      | 479       | 329       | 246       | 132       | 90        | 68        | 46        | 28        |
| KFH 145P  | 145            | 1189      | 1030      | 899      | 657      | 496       | 341       | 255       | 136       | 93        | 71        | 48        | 29        |
| KFH 160P  | 160            | 1312      | 1136      | 992      | 725      | 547       | 376       | 282       | 150       | 103       | 78        | 53        | 32        |
| KFH 180P  | 180            | 1476      | 1278      | 1116     | 815      | 616       | 423       | 317       | 169       | 116       | 88        | 59        | 36        |
| KFH 200P  | 200            | 1584      | 1400      | 1230     | 876      | 652       | 460       | 344       | 188       | 129       | 98        | 66        | 40        |
| KFH 220P  | 220            | 1804      | 1562      | 1364     | 997      | 752       | 517       | 387       | 207       | 141       | 107       | 72        | 44        |
| KFH 235P  | 235            | 1927      | 1669      | 1457     | 1065     | 804       | 552       | 414       | 221       | 151       | 115       | 77        | 47        |
| KFH 250P  | 250            | 2050      | 1775      | 1550     | 1133     | 843       | 588       | 440       | 235       | 161       | 122       | 82        | 50        |
| KFH 255P  | 255            | 2091      | 1811      | 1581     | 1155     | 872       | 599       | 449       | 240       | 164       | 124       | 84        | 51        |
| KFH 260P  | 260            | 2132      | 1846      | 1612     | 1178     | 889       | 611       | 458       | 244       | 167       | 127       | 86        | 52        |
| KFH 276P  | 276            | 2263      | 1960      | 1711     | 1250     | 944       | 649       | 486       | 259       | 177       | 135       | 91        | 55        |
| KFH 300P  | 300            | 2460      | 2130      | 1860     | 1359     | 1026      | 705       | 528       | 282       | 193       | 146       | 99        | 60        |

## Performance data - KFH-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 0.85V/cell

| Cell type | Capacity<br>Ah | 10<br>sec | 30<br>sec | 1<br>min | 5<br>min | 10<br>min | 20<br>min | 30<br>min |
|-----------|----------------|-----------|-----------|----------|----------|-----------|-----------|-----------|
| KFH 11P   | 11             | 121       | 105       | 90       | 66       | 46        | 30        | 20        |
| KFH 12P   | 12             | 132       | 114       | 98       | 72       | 50        | 32        | 22        |
| KFH 17P   | 17             | 187       | 162       | 139      | 102      | 71        | 46        | 31        |
| KFH 26P   | 26             | 286       | 247       | 213      | 156      | 109       | 70        | 47        |
| KFH 35P   | 35             | 385       | 333       | 287      | 210      | 147       | 95        | 64        |
| KFH 45P   | 45             | 495       | 428       | 369      | 270      | 189       | 122       | 82        |
| KFH 50P   | 50             | 550       | 475       | 410      | 300      | 210       | 135       | 91        |
| KFH 56P   | 56             | 616       | 532       | 459      | 336      | 235       | 151       | 102       |
| KFH 60P   | 60             | 660       | 570       | 492      | 360      | 252       | 162       | 109       |
| KFH 75P   | 75             | 825       | 713       | 615      | 450      | 315       | 203       | 137       |
| KFH 80P   | 80             | 880       | 760       | 656      | 480      | 336       | 216       | 146       |
| KFH 90P   | 90             | 990       | 855       | 738      | 540      | 378       | 243       | 164       |
| KFH 100P  | 100            | 1100      | 950       | 820      | 600      | 420       | 270       | 182       |
| KFH 120P  | 120            | 1320      | 1140      | 984      | 720      | 504       | 324       | 218       |
| KFH 135P  | 135            | 1485      | 1283      | 1107     | 810      | 567       | 365       | 246       |
| KFH 140P  | 140            | 1540      | 1330      | 1148     | 840      | 588       | 378       | 255       |
| KFH 145P  | 145            | 1595      | 1378      | 1189     | 870      | 609       | 392       | 264       |
| KFH 160P  | 160            | 1760      | 1520      | 1312     | 960      | 672       | 432       | 291       |
| KFH 180P  | 180            | 1980      | 1710      | 1476     | 1080     | 756       | 486       | 328       |
| KFH 200P  | 200            | 2160      | 1820      | 1600     | 1160     | 820       | 520       | 340       |
| KFH 220P  | 220            | 2420      | 2090      | 1804     | 1320     | 924       | 594       | 400       |
| KFH 235P  | 235            | 2585      | 2233      | 1927     | 1410     | 987       | 635       | 428       |
| KFH 250P  | 250            | 2750      | 2375      | 2050     | 1500     | 1050      | 675       | 455       |
| KFH 255P  | 255            | 2805      | 2423      | 2091     | 1530     | 1071      | 689       | 464       |
| KFH 260P  | 260            | 2860      | 2470      | 2132     | 1560     | 1092      | 702       | 473       |
| KFH 276P  | 276            | 3036      | 2622      | 2263     | 1656     | 1159      | 745       | 502       |
| KFH 300P  | 300            | 3300      | 2850      | 2460     | 1800     | 1260      | 810       | 546       |

## Performance data - KFH-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 0.65V/cell

| Cell type | Capacity<br>Ah | 10<br>sec | 30<br>sec | 1<br>min | 5<br>min | 10<br>min | 20<br>min | 30<br>min |
|-----------|----------------|-----------|-----------|----------|----------|-----------|-----------|-----------|
| KFH 11P   | 11             | 149       | 140       | 121      | 86       | 66        | 32        | 21        |
| KFH 12P   | 12             | 162       | 152       | 132      | 94       | 72        | 35        | 23        |
| KFH 17P   | 17             | 230       | 216       | 187      | 133      | 102       | 49        | 33        |
| KFH 26P   | 26             | 351       | 330       | 286      | 203      | 156       | 75        | 50        |
| KFH 35P   | 35             | 473       | 445       | 385      | 273      | 210       | 102       | 68        |
| KFH 45P   | 45             | 608       | 572       | 495      | 351      | 270       | 131       | 87        |
| KFH 50P   | 50             | 675       | 635       | 550      | 390      | 300       | 145       | 97        |
| KFH 56P   | 56             | 756       | 711       | 616      | 437      | 336       | 162       | 108       |
| KFH 60P   | 60             | 810       | 762       | 660      | 468      | 360       | 174       | 116       |
| KFH 75P   | 75             | 1013      | 953       | 825      | 585      | 450       | 218       | 145       |
| KFH 80P   | 80             | 1080      | 1016      | 880      | 624      | 480       | 232       | 154       |
| KFH 90P   | 90             | 1215      | 1143      | 990      | 702      | 540       | 261       | 174       |
| KFH 100P  | 100            | 1350      | 1270      | 1100     | 780      | 600       | 290       | 193       |
| KFH 120P  | 120            | 1620      | 1524      | 1320     | 936      | 720       | 348       | 232       |
| KFH 135P  | 135            | 1823      | 1715      | 1485     | 1053     | 810       | 392       | 261       |
| KFH 140P  | 140            | 1890      | 1778      | 1540     | 1092     | 840       | 406       | 270       |
| KFH 145P  | 145            | 1958      | 1842      | 1595     | 1131     | 870       | 421       | 280       |
| KFH 160P  | 160            | 2160      | 2032      | 1760     | 1248     | 960       | 464       | 309       |
| KFH 180P  | 180            | 2430      | 2286      | 1980     | 1404     | 1080      | 522       | 347       |
| KFH 200P  | 200            | 2480      | 2400      | 2100     | 1520     | 1160      | 560       | 384       |
| KFH 220P  | 220            | 2970      | 2794      | 2420     | 1716     | 1320      | 629       | 425       |
| KFH 235P  | 235            | 3173      | 2985      | 2585     | 1833     | 1410      | 672       | 454       |
| KFH 250P  | 250            | 3375      | 3175      | 2750     | 1950     | 1500      | 715       | 483       |
| KFH 255P  | 255            | 3443      | 3239      | 2805     | 1989     | 1530      | 729       | 492       |
| KFH 260P  | 260            | 3510      | 3302      | 2860     | 2028     | 1560      | 744       | 502       |
| KFH 276P  | 276            | 3726      | 3505      | 3036     | 2153     | 1656      | 789       | 533       |
| KFH 300P  | 300            | 4050      | 3810      | 3300     | 2340     | 1800      | 858       | 579       |

## Performance data - KFX-range

Discharge currents in Amperes at  $20 \pm 5^\circ\text{C}$  for a fully charged cell to ECV 1.14V/cell

| Cell type | Capacity<br>Ah | 1<br>sec | 5<br>sec | 10<br>sec | 30<br>sec | 1<br>Min | 5<br>min | 10<br>min |
|-----------|----------------|----------|----------|-----------|-----------|----------|----------|-----------|
| KFX 11 P  | 11             | 139      | 124      | 111       | 87        | 73       | 53       | 40        |
| KFX 16 P  | 16             | 213      | 190      | 170       | 134       | 112      | 77       | 58        |
| KFX 25 P  | 25             | 333      | 296      | 266       | 209       | 176      | 120      | 91        |
| KFX 38 P  | 38             | 531      | 468      | 421       | 332       | 269      | 182      | 138       |
| KFX 45 P  | 45             | 662      | 583      | 525       | 414       | 335      | 216      | 164       |
| KFX 60 P  | 60             | 738      | 673      | 610       | 487       | 416      | 270      | 210       |
| KFX 75 P  | 75             | 877      | 799      | 724       | 579       | 494      | 338      | 263       |
| KFX 90 P  | 90             | 1052     | 958      | 869       | 694       | 593      | 405      | 315       |
| KFX 100 P | 100            | 1169     | 1065     | 966       | 772       | 659      | 450      | 350       |
| KFX 120 P | 120            | 1402     | 1278     | 1159      | 926       | 791      | 540      | 420       |

## Performance data - KFX-range

Discharge currents in Amperes at  $20 \pm 5^\circ\text{C}$  for a fully charged cell to ECV 1.10V/cell

| Cell type | Capacity<br>Ah | 1<br>sec | 5<br>sec | 10<br>sec | 30<br>sec | 1<br>Min | 5<br>min | 10<br>min |
|-----------|----------------|----------|----------|-----------|-----------|----------|----------|-----------|
| KFX 11 P  | 11             | 180      | 164      | 153       | 124       | 105      | 66       | 47        |
| KFX 16 P  | 16             | 262      | 238      | 218       | 177       | 150      | 96       | 69        |
| KFX 25 P  | 25             | 410      | 373      | 338       | 271       | 232      | 150      | 108       |
| KFX 38 P  | 38             | 624      | 556      | 497       | 403       | 341      | 228      | 163       |
| KFX 45 P  | 45             | 724      | 645      | 577       | 468       | 396      | 270      | 194       |
| KFX 60 P  | 60             | 908      | 809      | 724       | 586       | 497      | 342      | 252       |
| KFX 75 P  | 75             | 1067     | 950      | 850       | 689       | 583      | 428      | 315       |
| KFX 90 P  | 90             | 1253     | 1122     | 1009      | 827       | 708      | 513      | 378       |
| KFX 100 P | 100            | 1357     | 1219     | 1102      | 912       | 787      | 570      | 420       |
| KFX 120 P | 120            | 1518     | 1363     | 1230      | 1016      | 875      | 684      | 504       |

## Performance data - KFX-range

Discharge currents in Amperes at  $20 \pm 5^\circ\text{C}$  for a fully charged cell to ECV 1.00V/cell

| Cell type | Capacity<br>Ah | 1<br>sec | 5<br>sec | 10<br>sec | 30<br>sec | 1<br>Min | 5<br>min | 10<br>min |
|-----------|----------------|----------|----------|-----------|-----------|----------|----------|-----------|
| KFX 11 P  | 11             | 262      | 227      | 207       | 172       | 145      | 90       | 52        |
| KFX 16 P  | 16             | 380      | 330      | 300       | 250       | 211      | 131      | 75        |
| KFX 25 P  | 25             | 594      | 500      | 450       | 375       | 330      | 205      | 118       |
| KFX 38 P  | 38             | 898      | 760      | 684       | 570       | 501      | 312      | 179       |
| KFX 45 P  | 45             | 1042     | 882      | 794       | 662       | 581      | 369      | 212       |
| KFX 60 P  | 60             | 1237     | 1147     | 1045      | 880       | 750      | 474      | 276       |
| KFX 75 P  | 75             | 1503     | 1280     | 1157      | 972       | 861      | 593      | 345       |
| KFX 90 P  | 90             | 1770     | 1498     | 1347      | 1123      | 987      | 711      | 414       |
| KFX 100 P | 100            | 1883     | 1594     | 1434      | 1196      | 1050     | 790      | 460       |
| KFX 120 P | 120            | 2124     | 1797     | 1618      | 1349      | 1185     | 948      | 552       |

## Performance data - KFX-range

Discharge currents in Amperes at  $20 \pm 5^{\circ}\text{C}$  for a fully charged cell to ECV 0.85V/cell

| Cell type | Capacity<br>Ah | 1<br>sec | 5<br>sec | 10<br>sec | 30<br>sec | 1<br>Min | 5<br>min | 10<br>min |
|-----------|----------------|----------|----------|-----------|-----------|----------|----------|-----------|
| KFX 11 P  | 11             | 367      | 324      | 296       | 275       | 234      | 104      | 53        |
| KFX 16 P  | 16             | 534      | 471      | 431       | 400       | 340      | 152      | 77        |
| KFX 25 P  | 25             | 835      | 736      | 673       | 550       | 475      | 237      | 120       |
| KFX 38 P  | 38             | 1269     | 1119     | 1023      | 836       | 722      | 360      | 182       |
| KFX 45 P  | 45             | 1505     | 1325     | 1211      | 1019      | 855      | 427      | 216       |
| KFX 60 P  | 60             | 1653     | 1493     | 1402      | 1231      | 1112     | 552      | 282       |
| KFX 75 P  | 75             | 2066     | 1867     | 1753      | 1539      | 1389     | 690      | 353       |
| KFX 90 P  | 90             | 2479     | 2240     | 2103      | 1847      | 1667     | 828      | 423       |
| KFX 100 P | 100            | 2755     | 2489     | 2337      | 2052      | 1853     | 920      | 470       |
| KFX 120 P | 120            | 3306     | 2987     | 2804      | 2462      | 2223     | 1104     | 564       |

## Performance data - KFX-range

Discharge currents in Amperes at  $20 \pm 5^{\circ}\text{C}$  for a fully charged cell to ECV 0.65V/cell

| Cell type | Capacity<br>Ah | 1<br>sec | 5<br>sec | 10<br>sec | 30<br>sec | 1<br>Min | 5<br>min | 10<br>min |
|-----------|----------------|----------|----------|-----------|-----------|----------|----------|-----------|
| KFX 11 P  | 11             | 480      | 435      | 405       | 345       | 280      | 108      | 54        |
| KFX 16 P  | 16             | 750      | 640      | 590       | 520       | 440      | 157      | 78        |
| KFX 25 P  | 25             | 1050     | 972      | 908       | 790       | 690      | 245      | 123       |
| KFX 38 P  | 38             | 1600     | 1480     | 1380      | 1220      | 1050     | 372      | 186       |
| KFX 45 P  | 45             | 2040     | 1800     | 1680      | 1470      | 1250     | 441      | 221       |
| KFX 60 P  | 60             | 2320     | 2230     | 2120      | 1840      | 1560     | 570      | 294       |
| KFX 75 P  | 75             | 2800     | 2650     | 2500      | 2100      | 1840     | 713      | 368       |
| KFX 90 P  | 90             | 3480     | 3300     | 3100      | 2720      | 2260     | 855      | 441       |
| KFX 100 P | 100            | 3800     | 3620     | 3410      | 3000      | 2450     | 950      | 490       |
| KFX 120 P | 120            | 4500     | 4300     | 4000      | 3600      | 2900     | 1140     | 588       |



## BATTERY RACK DIMENSIONS

For safe and reliable operation, batteries should be mounted on suitable battery racks. HBL NIFE battery racks are made of alkali-resistant, powder coated steel sections. Battery racks are available in multi-step one tier or multi-step two tier configuration. Standard battery racks are supplied in knocked-down condition and can be easily assembled at site.

| Container size reference          | 1Tier |   |       |     |       |     |       |      | 2Tier |   |       |      |       |      |       |      |
|-----------------------------------|-------|---|-------|-----|-------|-----|-------|------|-------|---|-------|------|-------|------|-------|------|
|                                   | 1STEP |   | 2STEP |     | 3STEP |     | 4STEP |      | 1STEP |   | 2STEP |      | 3STEP |      | 4STEP |      |
|                                   | W     | H | W     | H   | W     | H   | W     | H    | W     | H | W     | H    | W     | H    | W     | H    |
| Single Cells (Normal arrangement) |       |   |       |     |       |     |       |      |       |   |       |      |       |      |       |      |
| 1&2                               |       |   | 222   | 668 | 323   | 783 | 424   | 898  |       |   |       |      |       |      |       |      |
| 3                                 |       |   | 318   | 678 | 467   | 793 | 616   | 908  |       |   | 318   | 1070 | 467   | 1300 | 616   | 1550 |
| 4                                 |       |   | 318   | 728 | 467   | 843 | 616   | 958  |       |   | 318   | 1250 | 467   | 1450 | 616   | 1700 |
| 5                                 |       |   | 318   | 813 | 467   | 928 | 616   | 1043 |       |   | 318   | 1450 | 467   | 1670 | 616   | 1900 |
| 6                                 |       |   | 318   | 830 | 467   | 945 | 616   | 1060 |       |   | 318   | 1470 | 467   | 1700 | 616   | 1950 |
| 7                                 |       |   | 368   | 856 | 542   | 971 | 716   | 1086 |       |   | 368   | 1550 | 542   | 1760 | 716   | 2000 |
| 8                                 |       |   | 376   | 882 | 554   | 997 | 732   | 1112 |       |   | 376   | 1650 | 554   | 1860 | 732   | 2100 |

(All dimensions in mm)

### Evaluation of length

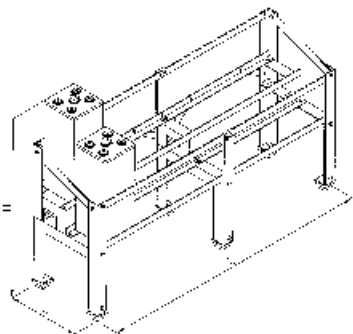
$$\begin{aligned}\text{Length of rack} &= (X + 1) \times \text{No. Of cells in a row for (S1-S5)} \\ &= (X + 2) \times \text{No. Of cells in a row for (S6-S8)}\end{aligned}$$

Where, X = Length of Cell ( i.e for S1-S8 )

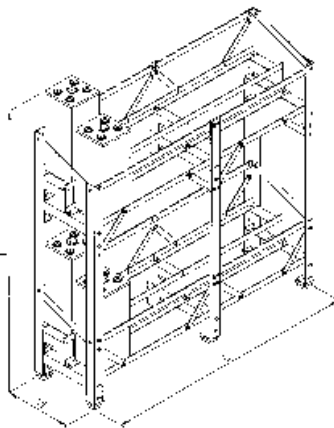
Note : Height is including cells

The value of length should be rounded off to nearest to 50 and 5 mm should be added.

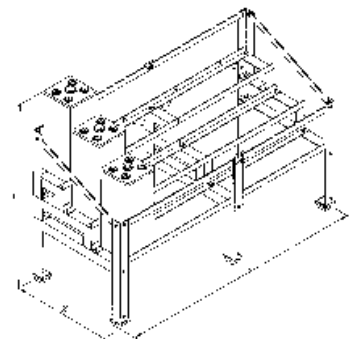
2 step, 1 tier rack



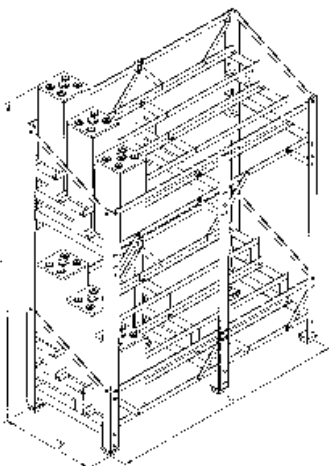
2 step, 2 tier rack



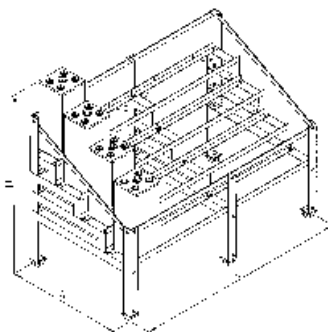
3 step, 1 tier rack



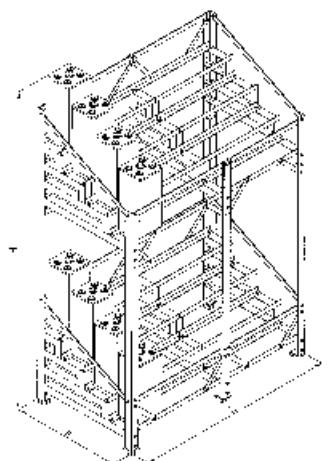
3 step, 2 tier rack



4 step, 1 tier rack



4 step, 2 tier rack



## KFL-range Block cell capacities and dimensions

| Cell type | Container size reference | Capacity at 5 hour rate | Cell dimension in mm |       |        |      |      | Cell connection bolt(s) size | Approximate weight of the cell (Kg) |      |      | Approximate electrolyte volume between the level marks (L) |      |      |
|-----------|--------------------------|-------------------------|----------------------|-------|--------|------|------|------------------------------|-------------------------------------|------|------|------------------------------------------------------------|------|------|
|           |                          |                         | Height               | Width | Length |      |      |                              | 1.2V                                | 2.4V | 3.6V | 1.2V                                                       | 2.4V | 3.6V |
|           |                          |                         |                      |       | 1.2V   | 2.4V | 3.6V |                              |                                     |      |      |                                                            |      |      |
| KFL 30P   | B12-1                    | 30                      | 244                  | 171   |        | 82   |      | M8                           |                                     | 4.6  |      |                                                            | 0.3  |      |
| KFL 38 P  | B11-1                    | 38                      | 244                  | 171   |        | 110  |      | M8                           |                                     | 6.5  |      |                                                            | 0.5  |      |
| KFL50 P   | B11-1                    | 50                      | 244                  | 171   |        | 110  |      | M8                           |                                     | 6.8  |      |                                                            | 0.5  |      |
| KFL 60P   | B11-1                    | 60                      | 244                  | 171   |        | 110  |      | M8                           |                                     | 7.1  |      |                                                            | 0.5  |      |
| KFL 70P   | B11-1                    | 70                      | 244                  | 171   |        | 110  |      | M8                           |                                     | 7.2  |      |                                                            | 0.5  |      |
| KFL 85P   | B32-1                    | 85                      | 349                  | 195   |        | 132  |      | M10                          |                                     | 11.5 |      |                                                            | 1.1  |      |
| KFL100P   | B32-1                    | 100                     | 349                  | 195   |        | 132  |      | M10                          |                                     | 12.0 |      |                                                            | 1.1  |      |
| KFL 125P  | B32-1                    | 125                     | 349                  | 195   |        | 132  |      | M10                          |                                     | 12.5 |      |                                                            | 1.1  |      |
| KFL 130P  | B32-1                    | 130                     | 349                  | 195   |        | 132  |      | M10                          |                                     | 12.6 |      |                                                            | 1.1  |      |
| KFL 140P  | B32-1                    | 140                     | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 12.7 |      |                                                            | 1.1  |      |
| KFL 150P  | B32-1                    | 150                     | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 12.9 |      |                                                            | 1.1  |      |
| KFL 175P  | B42-1                    | 175                     | 405                  | 195   |        | 132  | 192  | M10                          |                                     | 14.6 |      |                                                            | 1.1  |      |
| KFL 190P  | B42-1                    | 190                     | 405                  | 195   |        | 132  | 192  | M10                          |                                     | 14.7 |      |                                                            | 1.1  |      |
| KFL 200P  | B31-1                    | 200                     | 349                  | 195   |        | 183  | 267  | M10                          |                                     | 17.3 | 26.0 |                                                            | 1.6  | 2.4  |
| KFL 230P  | B31-1                    | 230                     | 349                  | 195   |        | 183  | 267  | M10                          |                                     | 17.8 | 26.7 |                                                            | 1.6  | 2.4  |
| KFL 255P  | B41-1                    | 255                     | 405                  | 195   |        | 183  | 267  | M10                          |                                     | 20.1 | 30.2 |                                                            | 1.6  | 2.4  |
| KFL 290P  | B41-1                    | 290                     | 405                  | 195   |        | 183  | 267  | M10                          |                                     | 20.6 | 31.0 |                                                            | 1.6  | 2.4  |
| KFL 330P  | B42-2                    | 330                     | 405                  | 195   | 132    | 252  | 372  | 2 X M10                      | 14.4                                | 28.9 | 43.3 | 1.1                                                        | 2.2  | 3.3  |
| KFL 350 P | B42-2                    | 350                     | 405                  | 195   | 132    | 252  | 372  | 2 X M10                      | 14.6                                | 29.1 | 43.7 | 1.1                                                        | 2.2  | 3.3  |
| KFL 370 P | B42-2                    | 370                     | 405                  | 195   | 132    | 252  | 372  | 2 X M10                      | 14.7                                | 29.3 | 44.0 | 1.1                                                        | 2.2  | 3.3  |
| KFL 410 P | B31-2                    | 410                     | 349                  | 195   | 183    | 352  |      | 2 X M10                      | 17.1                                | 34.3 |      | 1.6                                                        | 3.2  |      |
| KFL 450P  | B31-2                    | 450                     | 349                  | 195   | 183    | 352  |      | 2 X M10                      | 17.8                                | 35.6 |      | 1.6                                                        | 3.2  |      |
| KFL 460P  | B31-2                    | 460                     | 349                  | 195   | 183    | 352  |      | 2 X M10                      | 17.9                                | 35.8 |      | 1.6                                                        | 3.2  |      |
| KFL 500P  | B41-2                    | 500                     | 405                  | 195   | 183    | 352  |      | 2 X M10                      | 20.1                                | 40.2 |      | 1.6                                                        | 3.2  |      |
| KFL 520 P | B41-2                    | 520                     | 405                  | 195   | 183    | 352  |      | 2 X M10                      | 20.2                                | 40.4 |      | 1.6                                                        | 3.2  |      |
| KFL 530 P | B41-2                    | 530                     | 405                  | 195   | 183    | 352  |      | 2 X M10                      | 20.3                                | 40.6 |      | 1.6                                                        | 3.2  |      |
| KFL 540 P | B41-2                    | 540                     | 405                  | 195   | 183    | 352  |      | 2 X M10                      | 20.5                                | 40.9 |      | 1.6                                                        | 3.2  |      |
| KFL 570 P | B41-2                    | 570                     | 405                  | 195   | 183    | 352  |      | 2 X M10                      | 20.6                                | 41.3 |      | 1.6                                                        | 3.2  |      |
| KFL 610P  | B41-2                    | 610                     | 405                  | 195   | 183    | 352  |      | 2 X M10                      | 21.2                                | 42.3 |      | 1.6                                                        | 3.2  |      |
| KFL 650 P | B41-2                    | 650                     | 405                  | 195   | 183    | 352  |      | 2 X M10                      | 21.3                                | 42.6 |      | 1.6                                                        | 3.2  |      |
| KFL 660P  | B41-2                    | 660                     | 405                  | 195   | 183    | 352  |      | 2 X M10                      | 21.4                                | 42.8 |      | 1.6                                                        | 3.2  |      |
| KFL 685P  | B31-3                    | 685                     | 349                  | 195   | 267    |      |      | 3 X M10                      | 26.7                                |      |      | 2.4                                                        |      |      |
| KFL 700P  | B31-3                    | 700                     | 349                  | 195   | 267    |      |      | 3 X M10                      | 26.8                                |      |      | 2.4                                                        |      |      |
| KFL 730 P | B41-3                    | 730                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 29.9                                |      |      | 2.4                                                        |      |      |
| KFL 740P  | B41-3                    | 740                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 30.1                                |      |      | 2.4                                                        |      |      |
| KFL 765P  | B41-3                    | 765                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 30.2                                |      |      | 2.4                                                        |      |      |
| KFL 775P  | B41-3                    | 775                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 30.3                                |      |      | 2.4                                                        |      |      |
| KFL 820P  | B41-3                    | 820                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 31.0                                |      |      | 2.4                                                        |      |      |
| KFL 860P  | B41-3                    | 860                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 31.1                                |      |      | 2.4                                                        |      |      |
| KFL 880P  | B41-3                    | 880                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 31.2                                |      |      | 2.4                                                        |      |      |
| KFL 930P  | B31-4                    | 930                     | 349                  | 195   | 352    |      |      | 4 X M10                      | 35.8                                |      |      | 3.2                                                        |      |      |
| KFL 970P  | B41-4                    | 970                     | 405                  | 195   | 352    |      |      | 4 X M10                      | 40.2                                |      |      | 3.2                                                        |      |      |
| KFL 990P  | B41-4                    | 990                     | 405                  | 195   | 352    |      |      | 4 X M10                      | 40.3                                |      |      | 3.2                                                        |      |      |
| KFL 1030P | B41-4                    | 1030                    | 405                  | 195   | 352    |      |      | 4 X M10                      | 40.5                                |      |      | 3.2                                                        |      |      |
| KFL 1100P | B41-4                    | 1100                    | 405                  | 195   | 352    |      |      | 4 X M10                      | 40.9                                |      |      | 3.2                                                        |      |      |
| KFL 1170P | B41-4                    | 1170                    | 405                  | 195   | 352    |      |      | 4 X M10                      | 41.3                                |      |      | 3.2                                                        |      |      |
| KFL 1200P | B41-4                    | 1200                    | 405                  | 195   | 352    |      |      | 4 X M10                      | 41.4                                |      |      | 3.2                                                        |      |      |
| KFL 1235P | B41-4                    | 1235                    | 405                  | 195   | 352    |      |      | 4 X M10                      | 41.5                                |      |      | 3.2                                                        |      |      |
| KFL 1320P | B41-4                    | 1320                    | 405                  | 195   | 352    |      |      | 4 X M10                      | 42.5                                |      |      | 3.2                                                        |      |      |
| KFL 1400P | B41-5                    | 1400                    | 405                  | 195   | 436    |      |      | 5 X M10                      | 51.6                                |      |      | 4.0                                                        |      |      |
| KFL 1480P | B41-5                    | 1480                    | 405                  | 195   | 436    |      |      | 5 X M10                      | 51.7                                |      |      | 4.0                                                        |      |      |
| KFL 1500P | B41-5                    | 1500                    | 405                  | 195   | 436    |      |      | 5 X M10                      | 51.8                                |      |      | 4.0                                                        |      |      |

## KFM-range Block cell capacities and dimensions

| Cell type | Container size reference | Capacity at 5 hour rate | Cell dimension in mm |       |        |      |      | Cell connection bolt(s) size | Approximate weight of the cell (Kg) |      |      | Approximate electrolyte volume between the level marks (L) |      |      |
|-----------|--------------------------|-------------------------|----------------------|-------|--------|------|------|------------------------------|-------------------------------------|------|------|------------------------------------------------------------|------|------|
|           |                          |                         | Height               | Width | Length |      |      |                              | 1.2V                                | 2.4V | 3.6V | 1.2V                                                       | 2.4V | 3.6V |
|           |                          |                         |                      |       | 1.2V   | 2.4V | 3.6V |                              |                                     |      |      |                                                            |      |      |
| KFM 28P   | B12-1                    | 28                      | 244                  | 171   |        | 82   |      | M8                           |                                     | 4.6  |      |                                                            | 0.3  |      |
| KFM 30P   | B12-1                    | 30                      | 244                  | 171   |        | 82   |      | M8                           |                                     | 4.8  |      |                                                            | 0.3  |      |
| KFM 35P   | B11-1                    | 35                      | 244                  | 171   |        | 110  |      | M8                           |                                     | 6.7  |      |                                                            | 0.5  |      |
| KFM 49P   | B11-1                    | 49                      | 244                  | 171   |        | 110  |      | M8                           |                                     | 7.1  |      |                                                            | 0.5  |      |
| KFM 65P   | B11-1                    | 65                      | 244                  | 171   |        | 110  |      | M8                           |                                     | 7.5  |      |                                                            | 0.5  |      |
| KFM 70P   | B11-1                    | 70                      | 244                  | 171   |        | 110  |      | M8                           |                                     | 7.5  |      |                                                            | 0.5  |      |
| KFM 83P   | B32-1                    | 83                      | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 12.2 | 18.2 |                                                            | 1.1  | 1.7  |
| KFM 96P   | B32-1                    | 96                      | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 12.3 | 18.5 |                                                            | 1.1  | 1.7  |
| KFM 120P  | B32-1                    | 120                     | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 12.7 | 19.0 |                                                            | 1.1  | 1.7  |
| KFM 125P  | B32-1                    | 125                     | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 12.8 | 19.2 |                                                            | 1.1  | 1.7  |
| KFM 136P  | B32-1                    | 136                     | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 12.9 | 19.4 |                                                            | 1.1  | 1.7  |
| KFM 145P  | B32-1                    | 145                     | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 13.0 | 19.5 |                                                            | 1.1  | 1.7  |
| KFM 160P  | B42-1                    | 160                     | 405                  | 195   |        | 132  | 192  | M10                          |                                     | 15.0 | 22.5 |                                                            | 1.1  | 1.7  |
| KFM 168P  | B42-1                    | 168                     | 405                  | 195   |        | 132  | 192  | M10                          |                                     | 15.1 | 22.6 |                                                            | 1.1  | 1.7  |
| KFM 192P  | B31-1                    | 192                     | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 17.6 | 26.4 |                                                            | 1.1  | 1.7  |
| KFM 210P  | B31-1                    | 210                     | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 18.3 | 27.4 |                                                            | 1.6  | 2.4  |
| KFM 245P  | B31-1                    | 245                     | 349                  | 195   |        | 132  | 192  | M10                          |                                     | 19.6 | 29.4 |                                                            | 1.6  | 2.4  |
| KFM 255P  | B41-1                    | 255                     | 405                  | 195   |        | 132  | 192  | M10                          |                                     | 21.2 | 31.8 |                                                            | 1.6  | 2.4  |
| KFM 288P  | B41-1                    | 288                     | 405                  | 195   |        | 132  | 192  | M10                          |                                     | 21.9 | 32.9 |                                                            | 1.6  | 2.4  |
| KFM 300P  | B32-2                    | 300                     | 349                  | 195   | 132    | 252  | 372  | 2 x M10                      | 13.4                                | 26.8 | 40.2 | 1.1                                                        | 2.2  | 3.3  |
| KFM 315P  | B42-2                    | 315                     | 405                  | 195   | 132    | 252  | 372  | 2 x M10                      | 15.1                                | 30.1 | 45.2 | 1.1                                                        | 2.2  | 3.3  |
| KFM 329P  | B42-2                    | 329                     | 405                  | 195   | 132    | 252  | 372  | 2 x M10                      | 15.2                                | 30.5 | 45.7 | 1.1                                                        | 2.2  | 3.3  |
| KFM 342P  | B42-2                    | 342                     | 405                  | 195   | 132    | 252  | 372  | 2 x M10                      | 15.3                                | 30.6 | 45.9 | 1.1                                                        | 2.2  | 3.3  |
| KFM 365P  | B42-2                    | 365                     | 405                  | 195   | 132    | 252  | 372  | 2 x M10                      | 15.4                                | 30.8 | 46.2 | 1.1                                                        | 2.2  | 3.3  |
| KFM 380P  | B42-2                    | 380                     | 405                  | 195   | 132    | 252  | 372  | 2 x M10                      | 15.5                                | 31.0 | 46.5 | 1.1                                                        | 2.2  | 3.3  |
| KFM 420P  | B31-2                    | 420                     | 349                  | 195   | 183    | 352  | 520  | 2 x M10                      | 18.3                                | 36.6 | 54.8 | 1.6                                                        | 3.2  | 4.8  |
| KFM 455P  | B31-2                    | 455                     | 349                  | 195   | 183    | 352  | 520  | 2 x M10                      | 18.9                                | 37.8 | 56.7 | 1.6                                                        | 3.2  | 4.8  |
| KFM 464P  | B31-2                    | 464                     | 349                  | 195   | 183    | 352  | 520  | 2 x M10                      | 19.0                                | 38.0 | 57.0 | 1.6                                                        | 3.2  | 4.8  |
| KFM 470P  | B31-2                    | 470                     | 349                  | 195   | 183    | 352  | 520  | 2 x M10                      | 19.1                                | 38.2 | 57.3 | 1.6                                                        | 3.2  | 4.8  |
| KFM 490P  | B41-2                    | 490                     | 405                  | 195   | 183    | 352  | 520  | 2 x M10                      | 21.2                                | 42.4 | 63.7 | 1.6                                                        | 3.2  | 4.8  |
| KFM 500P  | B41-2                    | 500                     | 405                  | 195   | 183    | 352  | 520  | 2 x M10                      | 21.4                                | 42.8 | 64.2 | 1.6                                                        | 3.2  | 4.8  |
| KFM 525P  | B41-2                    | 525                     | 405                  | 195   | 183    | 352  | 520  | 2 x M10                      | 21.4                                | 42.9 | 64.3 | 1.6                                                        | 3.2  | 4.8  |
| KFM 530P  | B41-2                    | 530                     | 405                  | 195   | 183    | 352  | 520  | 2 x M10                      | 21.5                                | 43.0 | 64.5 | 1.6                                                        | 3.2  | 4.8  |
| KFM 541P  | B41-2                    | 541                     | 405                  | 195   | 183    | 352  | 520  | 2 x M10                      | 21.9                                | 43.8 |      | 1.6                                                        | 3.2  | 4.8  |
| KFM 694P  | B31-3                    | 694                     | 349                  | 195   | 267    | 520  |      | 3 x M10                      | 28.4                                |      |      | 2.4                                                        | 4.8  |      |
| KFM 890P  | B41-3                    | 890                     | 405                  | 195   | 267    | 520  |      | 3 x M10                      | 32.9                                |      |      | 2.4                                                        | 4.8  |      |
| KFM 921P  | B31-4                    | 921                     | 349                  | 195   | 352    |      |      | 4 x M10                      | 37.8                                |      |      | 3.2                                                        |      |      |
| KFM 960P  | B31-4                    | 960                     | 349                  | 195   | 352    |      |      | 4 x M10                      | 37.9                                |      |      | 3.2                                                        |      |      |
| KFM 1063P | B41-4                    | 1063                    | 405                  | 195   | 352    |      |      | 4 x M10                      | 42.5                                |      |      | 3.2                                                        |      |      |
| KFM 1155P | B41-4                    | 1155                    | 405                  | 195   | 352    |      |      | 4 x M10                      | 43.8                                |      |      | 3.2                                                        |      |      |
| KFM 1167P | B41-4                    | 1167                    | 405                  | 195   | 352    |      |      | 4 x M10                      | 43.9                                |      |      | 3.2                                                        |      |      |
| KFM 1267P | B41-5                    | 1267                    | 405                  | 195   | 436    |      |      | 5 x M10                      | 53.1                                |      |      | 4.0                                                        |      |      |
| KFM 1283P | B41-5                    | 1283                    | 405                  | 195   | 436    |      |      | 5 x M10                      | 53.2                                |      |      | 4.0                                                        |      |      |
| KFM 1288P | B41-5                    | 1288                    | 405                  | 195   | 436    |      |      | 5 x M10                      | 53.3                                |      |      | 4.0                                                        |      |      |
| KFM 1350P | B41-5                    | 1350                    | 405                  | 195   | 436    |      |      | 5 x M10                      | 54.8                                |      |      | 4.0                                                        |      |      |
| KFM 1391P | B41-5                    | 1391                    | 405                  | 195   | 436    |      |      | 5 x M10                      | 54.9                                |      |      | 4.0                                                        |      |      |

# KFH-range Block cell capacities and dimensions

| Cell type | Container size reference | Capacity at 5 hour rate | Cell dimension in mm |       |        |      |      | Cell connection bolt(s) size | Approximate weight of the cell (Kg) |      |      | Approximate electrolyte volume between the level marks (L) |      |      |
|-----------|--------------------------|-------------------------|----------------------|-------|--------|------|------|------------------------------|-------------------------------------|------|------|------------------------------------------------------------|------|------|
|           |                          |                         | Height               | Width | Length |      |      |                              | 1.2V                                | 2.4V | 3.6V | 1.2V                                                       | 2.4V | 3.6V |
|           |                          |                         |                      |       | 1.2V   | 2.4V | 3.6V |                              |                                     |      |      |                                                            |      |      |
| KFH 20P   | B12-1                    | 20                      | 244                  | 171   |        | 82   |      | M8                           |                                     | 4.3  |      |                                                            | 0.3  |      |
| KFH 35P   | B11-1                    | 35                      | 244                  | 171   |        | 110  |      | M8                           |                                     | 6.4  |      |                                                            | 0.5  |      |
| KFH 45P   | B11-1                    | 45                      | 244                  | 171   |        | 110  |      | M8                           |                                     | 6.7  |      |                                                            | 0.5  |      |
| KFH 60P   | B32-1                    | 60                      | 349                  | 195   |        | 132  |      | M10                          |                                     | 11.5 |      |                                                            | 1.1  |      |
| KFH 75P   | B32-1                    | 75                      | 349                  | 195   |        | 132  |      | M10                          |                                     | 11.9 |      |                                                            | 1.1  |      |
| KFH 80P   | B32-1                    | 80                      | 349                  | 195   |        | 132  |      | M10                          |                                     | 12.0 |      |                                                            | 1.1  |      |
| KFH 90P   | B32-1                    | 90                      | 349                  | 195   |        | 132  |      | M10                          |                                     | 12.3 |      |                                                            | 1.1  |      |
| KFH 110P  | B31-1                    | 110                     | 349                  | 195   |        | 183  |      | M10                          |                                     | 16.0 |      |                                                            | 1.6  |      |
| KFH 120P  | B31-1                    | 120                     | 349                  | 195   |        | 183  | 267  | M10                          |                                     | 16.7 | 25.0 |                                                            | 1.6  | 2.4  |
| KFH 135P  | B31-1                    | 135                     | 349                  | 195   |        | 183  | 267  | M10                          |                                     | 17.1 | 25.6 |                                                            | 1.6  | 2.4  |
| KFH 140P  | B31-1                    | 140                     | 349                  | 195   |        | 183  | 267  | M10                          |                                     | 17.2 | 25.6 |                                                            | 1.6  | 2.4  |
| KFH 145P  | B31-1                    | 145                     | 349                  | 195   |        | 183  | 267  | M10                          |                                     | 17.3 | 25.2 |                                                            | 1.6  | 2.4  |
| KFH 160P  | B31-1                    | 160                     | 349                  | 195   |        | 183  | 267  | M10                          |                                     | 17.4 | 25.8 |                                                            | 1.6  | 2.4  |
| KFH 180P  | B31-1                    | 180                     | 349                  | 195   |        | 183  | 267  | M10                          |                                     | 17.5 | 26.3 |                                                            | 1.6  | 2.4  |
| KFH 200P  | B41-1                    | 200                     | 405                  | 195   |        | 183  | 267  | M10                          |                                     | 19.9 | 29.8 |                                                            | 1.6  | 2.4  |
| KFH 220P  | B41-1                    | 220                     | 405                  | 195   |        | 183  | 267  | M10                          |                                     | 20.3 | 30.4 |                                                            | 1.6  | 2.4  |
| KFH 235P  | B41-1                    | 235                     | 405                  | 195   |        | 183  | 267  | M10                          |                                     | 20.4 | 30.6 |                                                            | 1.6  | 2.4  |
| KFH 250P  | B31-2                    | 250                     | 349                  | 195   | 183    | 352  | 520  | 2 X M10                      | 16.7                                | 33.4 | 50.1 | 1.6                                                        | 3.2  | 4.8  |
| KFH 255P  | B31-2                    | 255                     | 349                  | 195   | 183    | 352  | 520  | 2 X M10                      | 16.8                                | 33.6 | 50.4 | 1.6                                                        | 3.2  | 4.8  |
| KFH 260P  | B31-2                    | 260                     | 349                  | 195   | 183    | 352  | 520  | 2 X M10                      | 17.1                                | 34.1 | 51.2 | 1.6                                                        | 3.2  | 4.8  |
| KFH 276P  | B31-2                    | 276                     | 349                  | 195   | 183    | 352  | 520  | 2 X M10                      | 17.2                                | 34.4 | 51.6 | 1.6                                                        | 3.2  | 4.8  |
| KFH 300P  | B31-2                    | 300                     | 349                  | 195   | 183    | 352  | 520  | 2 X M10                      | 17.3                                | 34.6 | 51.9 | 1.6                                                        | 3.2  | 4.8  |
| KFH 316P  | B31-2                    | 316                     | 349                  | 195   | 183    | 352  | 520  | 2 X M10                      | 17.4                                | 34.8 | 52.2 | 1.6                                                        | 3.2  | 4.8  |
| KFH 342P  | B31-2                    | 342                     | 349                  | 195   | 183    | 352  | 520  | 2 X M10                      | 17.5                                | 35.0 | 52.5 | 1.6                                                        | 3.2  | 4.8  |
| KFH 354P  | B31-2                    | 354                     | 349                  | 195   | 183    | 352  | 520  | 2 X M10                      | 17.6                                | 35.2 | 52.6 | 1.6                                                        | 3.2  | 4.8  |
| KFH 390P  | B41-2                    | 390                     | 405                  | 195   | 183    |      |      | 2 X M10                      | 19.7                                |      |      | 1.6                                                        |      |      |
| KFH 414P  | B41-2                    | 414                     | 405                  | 195   | 183    |      |      | 2 X M10                      | 19.8                                |      |      | 1.6                                                        |      |      |
| KFH 450P  | B41-2                    | 450                     | 405                  | 195   | 183    |      |      | 2 X M10                      | 20.2                                |      |      | 1.6                                                        |      |      |
| KFH 474P  | B41-2                    | 474                     | 405                  | 195   | 183    |      |      | 2 X M10                      | 20.3                                |      |      | 1.6                                                        |      |      |
| KFH 513P  | B31-3                    | 513                     | 349                  | 195   | 267    |      |      | 3 X M10                      | 25.8                                |      |      | 2.4                                                        |      |      |
| KFH 520P  | B31-3                    | 520                     | 349                  | 195   | 267    |      |      | 3 X M10                      | 26.3                                |      |      | 2.4                                                        |      |      |
| KFH 552P  | B31-3                    | 552                     | 349                  | 195   | 267    |      |      | 3 X M10                      | 26.4                                |      |      | 2.4                                                        |      |      |
| KFH 600P  | B41-3                    | 600                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 29.7                                |      |      | 2.4                                                        |      |      |
| KFH 632P  | B41-3                    | 632                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 29.8                                |      |      | 2.4                                                        |      |      |
| KFH 650P  | B41-3                    | 650                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 29.9                                |      |      | 2.4                                                        |      |      |
| KFH 684P  | B41-3                    | 684                     | 405                  | 195   | 267    |      |      | 3 X M10                      | 30.3                                |      |      | 2.4                                                        |      |      |
| KFH 708P  | B41-4                    | 708                     | 405                  | 195   | 352    |      |      | 4 X M10                      | 38.7                                |      |      | 3.2                                                        |      |      |
| KFH 750P  | B41-4                    | 750                     | 405                  | 195   | 352    |      |      | 4 X M10                      | 38.8                                |      |      | 3.2                                                        |      |      |
| KFH 780P  | B41-4                    | 780                     | 405                  | 195   | 352    |      |      | 4 X M10                      | 38.9                                |      |      | 3.2                                                        |      |      |
| KFH 828P  | B41-4                    | 828                     | 405                  | 195   | 352    |      |      | 4 X M10                      | 39.6                                |      |      | 3.2                                                        |      |      |
| KFH 855P  | B41-4                    | 855                     | 405                  | 195   | 352    |      |      | 4 X M10                      | 39.7                                |      |      | 3.2                                                        |      |      |
| KFH 900P  | B41-4                    | 900                     | 405                  | 195   | 352    |      |      | 4 X M10                      | 40.4                                |      |      | 3.2                                                        |      |      |
| KFH 948P  | B41-4                    | 948                     | 405                  | 195   | 352    |      |      | 4 X M10                      | 40.5                                |      |      | 3.2                                                        |      |      |
| KFH 1026P | B41-5                    | 1026                    | 405                  | 195   | 436    |      |      | 5 X M10                      | 49.5                                |      |      | 4.0                                                        |      |      |

## Performance data - KFL-range

Discharge currents in Amperes at 20  $\pm$  5°C for a fully charged cell to ECV 1.14V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour | 8 hour | 10 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| KFL 30P   | 30       | 25     | 22     | 20     | 18     | 12     | 9      | 6      | 4      | 2.9     |
| KFL 38P   | 38       | 31     | 27     | 25     | 22     | 16     | 11     | 7      | 5      | 3.7     |
| KFL 50P   | 50       | 41     | 36     | 33     | 30     | 21     | 15     | 9      | 6      | 4.9     |
| KFL 60P   | 60       | 49     | 43     | 40     | 35     | 25     | 18     | 11     | 7      | 5.9     |
| KFL 70P   | 70       | 57     | 50     | 47     | 41     | 29     | 21     | 13     | 8      | 6.9     |
| KFL 85P   | 85       | 70     | 61     | 57     | 50     | 35     | 25     | 15     | 10     | 8.3     |
| KFL 100P  | 100      | 82     | 72     | 67     | 59     | 41     | 30     | 19     | 12     | 9.8     |
| KFL 125P  | 125      | 103    | 90     | 83     | 74     | 51     | 37     | 23     | 15     | 12.3    |
| KFL 130P  | 130      | 107    | 94     | 87     | 77     | 53     | 38     | 24     | 16     | 12.7    |
| KFL 140P  | 140      | 115    | 101    | 93     | 83     | 57     | 41     | 26     | 17     | 13.7    |
| KFL 150P  | 150      | 123    | 108    | 100    | 89     | 62     | 44     | 28     | 18     | 14.7    |
| KFL 175P  | 175      | 142    | 124    | 117    | 103    | 72     | 52     | 32     | 21     | 17.2    |
| KFL 190P  | 190      | 154    | 135    | 127    | 112    | 78     | 56     | 35     | 23     | 18.6    |
| KFL 200P  | 200      | 162    | 142    | 133    | 118    | 82     | 59     | 37     | 24     | 19.6    |
| KFL 230P  | 230      | 186    | 163    | 153    | 136    | 94     | 68     | 43     | 28     | 22.5    |
| KFL 255P  | 255      | 207    | 181    | 170    | 150    | 105    | 75     | 47     | 31     | 25.0    |
| KFL 290P  | 290      | 235    | 206    | 193    | 171    | 119    | 86     | 54     | 35     | 28.4    |
| KFL 330P  | 330      | 267    | 234    | 220    | 195    | 135    | 98     | 61     | 40     | 32.4    |
| KFL 350P  | 350      | 284    | 249    | 233    | 207    | 144    | 104    | 65     | 42     | 34.3    |
| KFL 370P  | 370      | 300    | 263    | 247    | 218    | 152    | 109    | 69     | 45     | 36.3    |
| KFL 410P  | 410      | 332    | 291    | 273    | 242    | 168    | 121    | 76     | 50     | 40.2    |
| KFL 450P  | 450      | 365    | 320    | 300    | 266    | 185    | 133    | 83     | 54     | 44.1    |
| KFL 460P  | 460      | 373    | 327    | 307    | 271    | 189    | 136    | 85     | 56     | 45.1    |
| KFL 500P  | 500      | 405    | 355    | 333    | 295    | 205    | 148    | 93     | 60     | 49.0    |
| KFL 520P  | 520      | 421    | 369    | 347    | 307    | 213    | 154    | 96     | 63     | 51.0    |
| KFL 530P  | 530      | 429    | 376    | 353    | 313    | 217    | 157    | 98     | 64     | 52.0    |
| KFL 540P  | 540      | 437    | 383    | 360    | 319    | 221    | 160    | 100    | 65     | 52.9    |
| KFL 570P  | 570      | 462    | 405    | 380    | 336    | 234    | 169    | 106    | 69     | 55.9    |
| KFL 610P  | 610      | 494    | 433    | 407    | 360    | 250    | 180    | 113    | 74     | 59.8    |
| KFL 650P  | 650      | 527    | 462    | 433    | 384    | 267    | 192    | 120    | 79     | 63.7    |
| KFL 660P  | 660      | 535    | 469    | 440    | 389    | 271    | 195    | 122    | 80     | 64.7    |
| KFL 685P  | 685      | 555    | 486    | 457    | 404    | 281    | 203    | 127    | 83     | 67.2    |
| KFL 700P  | 700      | 567    | 497    | 467    | 413    | 287    | 207    | 130    | 85     | 68.6    |
| KFL 730 P | 730      | 591    | 518    | 487    | 431    | 299    | 216    | 135    | 88     | 71.6    |
| KFL 740P  | 740      | 599    | 525    | 493    | 437    | 303    | 219    | 137    | 89     | 72.5    |
| KFL 765P  | 765      | 620    | 543    | 510    | 451    | 314    | 226    | 142    | 93     | 75.0    |
| KFL 775P  | 775      | 628    | 550    | 517    | 457    | 318    | 229    | 144    | 94     | 76.0    |
| KFL 820P  | 820      | 664    | 582    | 547    | 484    | 336    | 243    | 152    | 99     | 80.4    |
| KFL 860P  | 860      | 697    | 611    | 573    | 507    | 353    | 254    | 159    | 104    | 84.3    |
| KFL 880P  | 880      | 713    | 625    | 587    | 519    | 361    | 260    | 163    | 106    | 86.3    |
| KFL 930P  | 930      | 753    | 660    | 620    | 549    | 381    | 275    | 172    | 112    | 91.2    |
| KFL 970P  | 970      | 786    | 689    | 647    | 572    | 398    | 287    | 180    | 117    | 95.1    |
| KFL 990P  | 990      | 802    | 703    | 660    | 584    | 406    | 293    | 183    | 120    | 97.1    |
| KFL 1030P | 1030     | 834    | 731    | 687    | 608    | 422    | 305    | 191    | 125    | 101     |
| KFL 1100P | 1100     | 891    | 781    | 733    | 649    | 451    | 325    | 204    | 133    | 108     |
| KFL 1170P | 1170     | 948    | 831    | 780    | 690    | 480    | 346    | 217    | 141    | 115     |
| KFL 1200P | 1200     | 972    | 852    | 800    | 708    | 492    | 355    | 222    | 145    | 118     |
| KFL 1235P | 1235     | 1000   | 877    | 823    | 729    | 506    | 365    | 229    | 149    | 121     |
| KFL 1320P | 1320     | 1069   | 937    | 880    | 779    | 541    | 391    | 244    | 160    | 129     |
| KFL 1400P | 1400     | 1134   | 994    | 933    | 826    | 574    | 414    | 259    | 169    | 137     |
| KFL 1480P | 1480     | 1199   | 1051   | 987    | 873    | 607    | 438    | 274    | 179    | 145     |
| KFL 1500P | 1500     | 1215   | 1065   | 1000   | 885    | 615    | 444    | 278    | 181    | 147     |

## Performance data - KFL-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.10V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour | 8 hour | 10 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| KFL 30P   | 30       | 28     | 25     | 22     | 20     | 13     | 9      | 6      | 4      | 3.0     |
| KFL 38P   | 38       | 35     | 32     | 27     | 25     | 16     | 12     | 7      | 5      | 3.8     |
| KFL 50P   | 50       | 46     | 42     | 36     | 33     | 22     | 16     | 10     | 6      | 5       |
| KFL 60P   | 60       | 55     | 50     | 43     | 40     | 26     | 19     | 11     | 7      | 6       |
| KFL 70P   | 70       | 64     | 58     | 50     | 46     | 30     | 22     | 13     | 9      | 7       |
| KFL 85P   | 85       | 78     | 71     | 61     | 56     | 37     | 27     | 16     | 10     | 8.5     |
| KFL 100P  | 100      | 92     | 83     | 72     | 66     | 43     | 32     | 19     | 12     | 10      |
| KFL 125P  | 125      | 115    | 104    | 90     | 83     | 54     | 39     | 24     | 15     | 12.5    |
| KFL 130P  | 130      | 120    | 108    | 94     | 86     | 56     | 41     | 25     | 16     | 13      |
| KFL 140P  | 140      | 129    | 116    | 101    | 92     | 60     | 44     | 27     | 17     | 14      |
| KFL 150P  | 150      | 138    | 124    | 108    | 99     | 65     | 47     | 29     | 19     | 15      |
| KFL 175P  | 175      | 159    | 144    | 126    | 116    | 75     | 55     | 33     | 22     | 17.5    |
| KFL 190P  | 190      | 173    | 156    | 137    | 125    | 82     | 60     | 36     | 23     | 19      |
| KFL 200P  | 200      | 182    | 164    | 144    | 132    | 86     | 63     | 38     | 25     | 20      |
| KFL 230P  | 230      | 209    | 189    | 166    | 152    | 99     | 73     | 44     | 28     | 23      |
| KFL 255P  | 255      | 232    | 209    | 184    | 168    | 110    | 80     | 48     | 31     | 25.5    |
| KFL 290P  | 290      | 264    | 238    | 209    | 191    | 125    | 91     | 55     | 36     | 29      |
| KFL 330P  | 330      | 300    | 271    | 238    | 218    | 142    | 104    | 63     | 41     | 33      |
| KFL 350P  | 350      | 319    | 287    | 252    | 231    | 151    | 110    | 67     | 43     | 35      |
| KFL 370P  | 370      | 337    | 303    | 266    | 244    | 159    | 117    | 70     | 46     | 37      |
| KFL 410P  | 410      | 373    | 336    | 295    | 271    | 176    | 129    | 78     | 51     | 41      |
| KFL 450P  | 450      | 410    | 369    | 324    | 297    | 194    | 142    | 86     | 56     | 45      |
| KFL 460P  | 460      | 419    | 377    | 331    | 304    | 198    | 145    | 87     | 57     | 46      |
| KFL 500P  | 500      | 455    | 410    | 360    | 330    | 215    | 158    | 95     | 62     | 50      |
| KFL 520P  | 520      | 473    | 426    | 374    | 343    | 224    | 164    | 99     | 64     | 52      |
| KFL 530P  | 530      | 482    | 435    | 382    | 350    | 228    | 167    | 101    | 65     | 53      |
| KFL 540P  | 540      | 491    | 443    | 389    | 356    | 232    | 170    | 103    | 67     | 54      |
| KFL 570P  | 570      | 519    | 467    | 410    | 376    | 245    | 180    | 108    | 70     | 57      |
| KFL 610P  | 610      | 555    | 500    | 439    | 403    | 262    | 192    | 116    | 75     | 61      |
| KFL 650P  | 650      | 592    | 533    | 468    | 429    | 280    | 205    | 124    | 80     | 65      |
| KFL 660P  | 660      | 601    | 541    | 475    | 436    | 284    | 208    | 125    | 81     | 66      |
| KFL 685P  | 685      | 623    | 562    | 493    | 452    | 295    | 216    | 130    | 85     | 68.5    |
| KFL 700P  | 700      | 637    | 574    | 504    | 462    | 301    | 221    | 133    | 86     | 70      |
| KFL 730P  | 730      | 664    | 599    | 526    | 482    | 314    | 230    | 139    | 90     | 73      |
| KFL 740P  | 740      | 673    | 607    | 533    | 488    | 318    | 233    | 141    | 91     | 74      |
| KFL 765P  | 765      | 696    | 627    | 551    | 505    | 329    | 241    | 145    | 94     | 76.5    |
| KFL 775P  | 775      | 705    | 636    | 558    | 512    | 333    | 244    | 147    | 96     | 77.5    |
| KFL 820P  | 820      | 746    | 672    | 590    | 541    | 353    | 259    | 156    | 101    | 82      |
| KFL 860P  | 860      | 783    | 705    | 619    | 568    | 370    | 271    | 163    | 106    | 86      |
| KFL 880P  | 880      | 801    | 722    | 634    | 581    | 378    | 278    | 167    | 109    | 88      |
| KFL 930P  | 930      | 846    | 763    | 670    | 614    | 400    | 293    | 177    | 115    | 93      |
| KFL 970P  | 970      | 883    | 795    | 698    | 640    | 417    | 306    | 184    | 120    | 97      |
| KFL 990P  | 990      | 901    | 812    | 713    | 653    | 426    | 312    | 188    | 122    | 99      |
| KFL 1030P | 1030     | 937    | 845    | 742    | 680    | 443    | 325    | 196    | 127    | 103     |
| KFL 1100P | 1100     | 1001   | 902    | 792    | 726    | 473    | 347    | 209    | 136    | 110     |
| KFL 1170P | 1170     | 1065   | 959    | 842    | 772    | 503    | 369    | 222    | 144    | 117     |
| KFL 1200P | 1200     | 1092   | 984    | 864    | 792    | 516    | 379    | 228    | 148    | 120     |
| KFL 1235P | 1235     | 1124   | 1013   | 889    | 815    | 531    | 383    | 235    | 152    | 124     |
| KFL 1320P | 1320     | 1201   | 1082   | 950    | 871    | 568    | 409    | 251    | 162    | 132     |
| KFL 1400P | 1400     | 1274   | 1148   | 1008   | 924    | 602    | 434    | 266    | 172    | 140     |
| KFL 1480P | 1480     | 1347   | 1214   | 1066   | 977    | 636    | 459    | 281    | 182    | 148     |
| KFL 1500P | 1500     | 1365   | 1230   | 1080   | 990    | 645    | 471    | 285    | 185    | 150     |

## Performance data - KFL-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.05V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour | 8 hour | 10 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| KFL 30P   | 30       | 31     | 28     | 23     | 21     | 14     | 10     | 6      | 4      | 3.0     |
| KFL 38P   | 38       | 40     | 35     | 30     | 27     | 17     | 12     | 7      | 5      | 3.8     |
| KFL 50P   | 50       | 52     | 47     | 39     | 36     | 23     | 16     | 10     | 6      | 5.0     |
| KFL 60P   | 60       | 62     | 56     | 47     | 43     | 28     | 19     | 12     | 8      | 6.0     |
| KFL 70P   | 70       | 73     | 65     | 55     | 50     | 32     | 22     | 14     | 9      | 7.0     |
| KFL 85P   | 85       | 88     | 79     | 66     | 60     | 39     | 27     | 17     | 10     | 8.6     |
| KFL 100P  | 100      | 104    | 93     | 78     | 71     | 46     | 32     | 20     | 13     | 10.1    |
| KFL 125P  | 125      | 130    | 116    | 98     | 89     | 58     | 40     | 25     | 16     | 12.6    |
| KFL 130P  | 130      | 135    | 121    | 101    | 92     | 60     | 42     | 26     | 16     | 13.1    |
| KFL 140P  | 140      | 146    | 130    | 109    | 99     | 64     | 45     | 28     | 18     | 14.1    |
| KFL 150P  | 150      | 156    | 140    | 117    | 107    | 69     | 48     | 29     | 19     | 15.1    |
| KFL 170P  | 175      | 180    | 161    | 137    | 124    | 81     | 56     | 34     | 22     | 17.6    |
| KFL 190P  | 190      | 196    | 175    | 148    | 135    | 87     | 61     | 37     | 24     | 19.1    |
| KFL 200P  | 200      | 206    | 184    | 156    | 142    | 92     | 64     | 39     | 25     | 20.1    |
| KFL 230P  | 230      | 237    | 212    | 179    | 163    | 106    | 74     | 45     | 29     | 23.1    |
| KFL 255P  | 255      | 263    | 235    | 199    | 181    | 117    | 82     | 50     | 32     | 25.7    |
| KFL 290P  | 290      | 299    | 267    | 226    | 206    | 133    | 93     | 57     | 37     | 29.2    |
| KFL 330P  | 330      | 340    | 304    | 257    | 234    | 152    | 106    | 65     | 42     | 33.2    |
| KFL 350P  | 350      | 361    | 322    | 273    | 249    | 161    | 112    | 69     | 44     | 35.2    |
| KFL 370P  | 370      | 381    | 340    | 289    | 263    | 170    | 119    | 73     | 47     | 37.2    |
| KFL 410P  | 410      | 422    | 377    | 320    | 291    | 189    | 131    | 81     | 52     | 41.2    |
| KFL 450P  | 450      | 464    | 414    | 351    | 320    | 207    | 144    | 88     | 57     | 45.3    |
| KFL 460P  | 460      | 474    | 423    | 359    | 327    | 212    | 147    | 90     | 58     | 46.3    |
| KFL 500P  | 500      | 515    | 460    | 390    | 355    | 230    | 160    | 98     | 63     | 50.3    |
| KFL 520P  | 520      | 536    | 478    | 406    | 369    | 239    | 167    | 102    | 65     | 52.3    |
| KFL 530P  | 530      | 546    | 488    | 413    | 376    | 244    | 170    | 104    | 67     | 53.3    |
| KFL 540P  | 540      | 556    | 497    | 421    | 383    | 248    | 173    | 106    | 68     | 54.3    |
| KFL 570P  | 570      | 587    | 524    | 445    | 405    | 262    | 183    | 112    | 72     | 57.3    |
| KFL 610P  | 610      | 628    | 561    | 476    | 433    | 281    | 196    | 120    | 77     | 61.4    |
| KFL 650P  | 650      | 670    | 598    | 507    | 462    | 299    | 208    | 128    | 82     | 65.4    |
| KFL 660P  | 660      | 680    | 607    | 515    | 469    | 304    | 212    | 130    | 83     | 66.4    |
| KFL 685P  | 685      | 706    | 630    | 534    | 486    | 315    | 220    | 135    | 86     | 68.9    |
| KFL 700P  | 700      | 721    | 644    | 546    | 497    | 322    | 224    | 138    | 88     | 70.4    |
| KFL 730 P | 730      | 752    | 672    | 569    | 518    | 336    | 234    | 143    | 92     | 73.4    |
| KFL 740P  | 740      | 762    | 681    | 577    | 525    | 340    | 237    | 145    | 93     | 74.4    |
| KFL 765P  | 765      | 788    | 704    | 597    | 543    | 352    | 245    | 150    | 96     | 77.0    |
| KFL 775P  | 775      | 798    | 713    | 605    | 550    | 357    | 248    | 152    | 98     | 78.0    |
| KFL 820P  | 820      | 845    | 754    | 640    | 582    | 377    | 263    | 161    | 103    | 82.5    |
| KFL 860P  | 860      | 886    | 791    | 671    | 611    | 396    | 276    | 169    | 108    | 86.5    |
| KFL 880P  | 880      | 906    | 810    | 686    | 625    | 405    | 282    | 173    | 111    | 88.5    |
| KFL 930P  | 930      | 958    | 856    | 725    | 660    | 428    | 298    | 183    | 117    | 93.6    |
| KFL 970P  | 970      | 999    | 892    | 757    | 689    | 446    | 311    | 191    | 122    | 97.6    |
| KFL 990P  | 990      | 1020   | 911    | 772    | 703    | 455    | 317    | 194    | 125    | 99.6    |
| KFL 1030P | 1030     | 1061   | 948    | 803    | 731    | 474    | 330    | 202    | 130    | 103.6   |
| KFL 1100P | 1100     | 1133   | 1012   | 858    | 781    | 506    | 353    | 216    | 139    | 110.7   |
| KFL 1170P | 1170     | 1205   | 1076   | 913    | 831    | 538    | 375    | 230    | 147    | 117.7   |
| KFL 1200P | 1200     | 1236   | 1104   | 936    | 852    | 552    | 385    | 236    | 151    | 120.7   |
| KFL 1235P | 1235     | 1272   | 1136   | 963    | 877    | 568    | 396    | 243    | 156    | 124.2   |
| KFL 1320P | 1320     | 1360   | 1214   | 1030   | 937    | 607    | 423    | 259    | 166    | 132.8   |
| KFL 1400P | 1400     | 1442   | 1288   | 1092   | 994    | 644    | 449    | 275    | 176    | 140.8   |
| KFL 1480P | 1480     | 1524   | 1362   | 1154   | 1051   | 681    | 474    | 291    | 186    | 148.9   |
| KFL 1500P | 1500     | 1545   | 1380   | 1170   | 1065   | 690    | 481    | 295    | 189    | 150.9   |

## Performance data - KFL-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.00V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour | 8 hour | 10 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| KFL 30P   | 30       | 35     | 30     | 26     | 24     | 15     | 10     | 6      | 4      | 3.1     |
| KFL 38P   | 38       | 44     | 38     | 32     | 30     | 18     | 12     | 8      | 5      | 3.9     |
| KFL 50P   | 50       | 58     | 50     | 43     | 40     | 24     | 16     | 10     | 6      | 5.1     |
| KFL 60P   | 60       | 70     | 59     | 51     | 47     | 29     | 20     | 12     | 8      | 6.1     |
| KFL 70P   | 70       | 81     | 69     | 60     | 55     | 34     | 23     | 14     | 9      | 7.1     |
| KFL 85P   | 85       | 99     | 84     | 72     | 67     | 41     | 28     | 17     | 11     | 8.7     |
| KFL 100P  | 100      | 116    | 99     | 85     | 79     | 49     | 33     | 20     | 13     | 10.2    |
| KFL 125P  | 125      | 145    | 124    | 106    | 99     | 61     | 41     | 25     | 16     | 12.7    |
| KFL 130P  | 130      | 151    | 129    | 111    | 103    | 63     | 42     | 26     | 16     | 13.3    |
| KFL 140P  | 140      | 162    | 139    | 119    | 111    | 68     | 46     | 28     | 18     | 14.3    |
| KFL 150P  | 150      | 174    | 149    | 128    | 117    | 73     | 49     | 30     | 19     | 15.1    |
| KFL 175P  | 175      | 201    | 172    | 149    | 137    | 85     | 57     | 35     | 22     | 17.7    |
| KFL 190P  | 190      | 219    | 186    | 162    | 148    | 92     | 62     | 38     | 24     | 19.2    |
| KFL 200P  | 200      | 230    | 196    | 170    | 156    | 97     | 65     | 40     | 25     | 20.2    |
| KFL 230P  | 230      | 265    | 225    | 196    | 179    | 112    | 75     | 46     | 29     | 23.2    |
| KFL 255P  | 255      | 293    | 250    | 217    | 199    | 124    | 83     | 51     | 32     | 25.7    |
| KFL 290P  | 290      | 334    | 284    | 247    | 226    | 141    | 94     | 58     | 37     | 29.3    |
| KFL 330P  | 330      | 380    | 323    | 281    | 257    | 160    | 107    | 66     | 42     | 33.3    |
| KFL 350P  | 350      | 403    | 343    | 298    | 273    | 170    | 114    | 70     | 44     | 35.3    |
| KFL 370P  | 370      | 426    | 363    | 315    | 289    | 179    | 121    | 74     | 47     | 37.3    |
| KFL 410P  | 410      | 472    | 402    | 349    | 320    | 199    | 134    | 82     | 52     | 41.4    |
| KFL 450P  | 450      | 518    | 441    | 383    | 351    | 218    | 147    | 90     | 57     | 45.4    |
| KFL 460P  | 460      | 529    | 451    | 391    | 359    | 223    | 150    | 92     | 58     | 46.4    |
| KFL 500P  | 500      | 575    | 490    | 425    | 390    | 242    | 163    | 100    | 63     | 50.5    |
| KFL 520P  | 520      | 598    | 510    | 442    | 406    | 252    | 169    | 104    | 66     | 52.5    |
| KFL 530P  | 530      | 610    | 519    | 451    | 413    | 257    | 173    | 106    | 67     | 53.5    |
| KFL 540P  | 540      | 621    | 529    | 459    | 421    | 262    | 176    | 108    | 68     | 54.5    |
| KFL 570P  | 570      | 656    | 559    | 485    | 445    | 276    | 186    | 114    | 72     | 57.5    |
| KFL 610P  | 610      | 702    | 598    | 519    | 476    | 296    | 199    | 122    | 77     | 61.6    |
| KFL 650P  | 650      | 748    | 637    | 553    | 507    | 315    | 212    | 130    | 82     | 65.6    |
| KFL 660P  | 660      | 759    | 647    | 561    | 515    | 320    | 215    | 132    | 84     | 66.6    |
| KFL 685P  | 685      | 788    | 671    | 582    | 534    | 332    | 223    | 137    | 87     | 69.1    |
| KFL 700P  | 700      | 805    | 686    | 595    | 546    | 339    | 228    | 140    | 89     | 70.7    |
| KFL 730P  | 730      | 840    | 715    | 621    | 569    | 354    | 238    | 146    | 92     | 73.7    |
| KFL 740P  | 740      | 851    | 725    | 629    | 577    | 359    | 241    | 148    | 94     | 74.7    |
| KFL 765P  | 765      | 880    | 750    | 650    | 597    | 371    | 249    | 153    | 97     | 77.2    |
| KFL 775P  | 775      | 891    | 760    | 659    | 605    | 376    | 252    | 155    | 98     | 78.2    |
| KFL 820P  | 820      | 943    | 804    | 697    | 640    | 398    | 267    | 164    | 104    | 82.8    |
| KFL 860P  | 860      | 989    | 843    | 731    | 671    | 417    | 280    | 172    | 109    | 86.8    |
| KFL 880P  | 880      | 1012   | 862    | 748    | 686    | 427    | 287    | 176    | 111    | 88.8    |
| KFL 930P  | 930      | 1070   | 911    | 791    | 725    | 451    | 303    | 186    | 118    | 93.9    |
| KFL 970P  | 970      | 1116   | 951    | 825    | 757    | 470    | 316    | 194    | 123    | 97.9    |
| KFL 990P  | 990      | 1139   | 970    | 842    | 772    | 480    | 322    | 198    | 125    | 99.9    |
| KFL 1030P | 1030     | 1185   | 1009   | 876    | 803    | 499    | 336    | 206    | 130    | 104     |
| KFL 1100P | 1100     | 1265   | 1078   | 935    | 858    | 533    | 358    | 220    | 139    | 111     |
| KFL 1170P | 1170     | 1346   | 1147   | 995    | 913    | 567    | 381    | 234    | 148    | 118     |
| KFL 1200P | 1200     | 1380   | 1176   | 1020   | 936    | 582    | 391    | 240    | 152    | 121     |
| KFL 1235P | 1235     | 1420   | 1210   | 1050   | 963    | 599    | 402    | 247    | 156    | 125     |
| KFL 1320P | 1320     | 1518   | 1294   | 1122   | 1030   | 640    | 430    | 264    | 167    | 133     |
| KFL 1400P | 1400     | 1610   | 1372   | 1190   | 1092   | 679    | 456    | 280    | 177    | 141     |
| KFL 1480P | 1480     | 1702   | 1450   | 1258   | 1154   | 718    | 482    | 296    | 187    | 149     |
| KFL 1500P | 1500     | 1725   | 1470   | 1275   | 1170   | 727    | 489    | 300    | 190    | 151     |



## Performance data - KFM - range

Discharge currents in Amperes at 20  $\pm$  5°C for a fully charged cell to ECV 1.14V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|
| KFM 28P   | 28       | 31     | 25     | 22     | 20     | 12     | 8      | 5.3    |
| KFM 30P   | 30       | 33     | 27     | 24     | 22     | 13     | 9      | 5.7    |
| KFM 35P   | 35       | 39     | 32     | 28     | 26     | 15     | 11     | 6.7    |
| KFM 49P   | 49       | 54     | 44     | 39     | 36     | 22     | 15     | 9.3    |
| KFM 65P   | 65       | 72     | 59     | 52     | 47     | 29     | 20     | 12.4   |
| KFM 70P   | 70       | 77     | 63     | 56     | 51     | 31     | 21     | 13.3   |
| KFM 83P   | 83       | 91     | 75     | 66     | 61     | 37     | 25     | 15.8   |
| KFM 96P   | 96       | 106    | 86     | 77     | 70     | 42     | 29     | 18.2   |
| KFM 120P  | 120      | 132    | 108    | 96     | 88     | 53     | 36     | 22.8   |
| KFM 125P  | 125      | 138    | 113    | 100    | 91     | 55     | 38     | 23.8   |
| KFM 136P  | 136      | 150    | 122    | 109    | 99     | 60     | 41     | 25.8   |
| KFM 145P  | 145      | 160    | 131    | 116    | 106    | 64     | 44     | 27.6   |
| KFM 160P  | 160      | 174    | 142    | 128    | 117    | 70     | 48     | 30.4   |
| KFM 168P  | 168      | 183    | 150    | 134    | 123    | 74     | 51     | 31.9   |
| KFM 192P  | 192      | 209    | 171    | 154    | 140    | 84     | 58     | 36.5   |
| KFM 210P  | 210      | 229    | 187    | 168    | 153    | 92     | 63     | 39.9   |
| KFM 245P  | 245      | 267    | 218    | 196    | 179    | 108    | 74     | 46.6   |
| KFM 255P  | 255      | 278    | 227    | 204    | 186    | 112    | 77     | 48.5   |
| KFM 288P  | 288      | 314    | 256    | 230    | 210    | 127    | 87     | 54.7   |
| KFM 300P  | 300      | 327    | 267    | 240    | 219    | 132    | 90     | 57.0   |
| KFM 315P  | 315      | 343    | 280    | 252    | 230    | 139    | 95     | 59.9   |
| KFM 329P  | 329      | 359    | 293    | 263    | 240    | 145    | 99     | 62.4   |
| KFM 342P  | 342      | 373    | 304    | 274    | 250    | 150    | 103    | 65.0   |
| KFM 365P  | 365      | 398    | 325    | 292    | 266    | 161    | 110    | 69.4   |
| KFM 380P  | 380      | 414    | 338    | 304    | 277    | 167    | 114    | 72.2   |
| KFM 420P  | 420      | 458    | 374    | 336    | 307    | 185    | 126    | 79.8   |
| KFM 455P  | 455      | 496    | 405    | 364    | 332    | 200    | 137    | 86.5   |
| KFM 464P  | 464      | 506    | 413    | 371    | 339    | 204    | 140    | 88.2   |
| KFM 470P  | 470      | 512    | 418    | 376    | 343    | 207    | 141    | 89.3   |
| KFM 490P  | 490      | 534    | 436    | 392    | 358    | 216    | 147    | 93.1   |
| KFM 500P  | 500      | 545    | 445    | 400    | 365    | 220    | 151    | 95.0   |
| KFM 525P  | 525      | 572    | 467    | 420    | 383    | 231    | 158    | 99.8   |
| KFM 530P  | 530      | 578    | 472    | 424    | 387    | 233    | 160    | 100.7  |
| KFM 541P  | 541      | 590    | 481    | 433    | 395    | 238    | 163    | 102.8  |
| KFM 694P  | 694      | 756    | 618    | 555    | 507    | 305    | 209    | 131.9  |
| KFM 890P  | 890      | 970    | 792    | 712    | 650    | 392    | 268    | 169.1  |
| KFM 921P  | 921      | 1004   | 820    | 737    | 672    | 405    | 277    | 175.0  |
| KFM 960P  | 960      | 1046   | 854    | 768    | 701    | 422    | 289    | 182.4  |
| KFM 1063P | 1063     | 1159   | 946    | 850    | 776    | 468    | 320    | 202.0  |
| KFM 1155P | 1155     | 1259   | 1028   | 924    | 843    | 508    | 348    | 219.5  |
| KFM 1167P | 1167     | 1272   | 1039   | 934    | 852    | 513    | 351    | 221.7  |
| KFM 1267P | 1267     | 1381   | 1128   | 1014   | 925    | 557    | 381    | 240.7  |
| KFM 1283P | 1283     | 1398   | 1142   | 1026   | 937    | 565    | 386    | 243.8  |
| KFM 1288P | 1288     | 1404   | 1146   | 1030   | 940    | 567    | 388    | 244.7  |
| KFM 1350P | 1350     | 1472   | 1202   | 1080   | 986    | 594    | 406    | 256.5  |
| KFM 1391P | 1391     | 1516   | 1238   | 1113   | 1015   | 612    | 419    | 264.3  |

## Performance data - KFM - range

Discharge currents in Amperes at 20  $\pm$  5°C for a fully charged cell to ECV 1.10V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|
| KFM 28P   | 28       | 34     | 29     | 23     | 22     | 13     | 9      | 5      |
| KFM 30P   | 30       | 37     | 32     | 25     | 24     | 14     | 9      | 6      |
| KFM 35P   | 35       | 43     | 37     | 29     | 28     | 16     | 11     | 7      |
| KFM 49P   | 49       | 60     | 51     | 41     | 39     | 23     | 15     | 10     |
| KFM 65P   | 65       | 80     | 68     | 54     | 51     | 30     | 20     | 13     |
| KFM 70P   | 70       | 86     | 74     | 58     | 55     | 32     | 22     | 14     |
| KFM 83P   | 83       | 102    | 87     | 69     | 66     | 38     | 26     | 16     |
| KFM 96P   | 96       | 118    | 101    | 80     | 76     | 44     | 30     | 19     |
| KFM 120P  | 120      | 147    | 126    | 100    | 95     | 55     | 38     | 24     |
| KFM 125P  | 125      | 153    | 131    | 104    | 99     | 58     | 39     | 25     |
| KFM 136P  | 136      | 167    | 143    | 113    | 107    | 63     | 43     | 27     |
| KFM 145P  | 145      | 178    | 152    | 120    | 115    | 67     | 46     | 28     |
| KFM 160P  | 160      | 194    | 166    | 133    | 126    | 74     | 50     | 31     |
| KFM 168P  | 168      | 204    | 175    | 139    | 133    | 77     | 53     | 33     |
| KFM 192P  | 192      | 233    | 200    | 159    | 152    | 88     | 60     | 38     |
| KFM 210P  | 210      | 255    | 218    | 174    | 166    | 97     | 66     | 41     |
| KFM 245P  | 245      | 298    | 255    | 203    | 194    | 113    | 77     | 48     |
| KFM 255P  | 255      | 310    | 265    | 212    | 201    | 117    | 80     | 50     |
| KFM 288P  | 288      | 350    | 300    | 239    | 228    | 132    | 91     | 56     |
| KFM 300P  | 300      | 365    | 312    | 249    | 237    | 138    | 95     | 59     |
| KFM 315P  | 315      | 383    | 328    | 261    | 249    | 145    | 99     | 62     |
| KFM 329P  | 329      | 400    | 342    | 273    | 260    | 151    | 104    | 64     |
| KFM 342P  | 342      | 416    | 356    | 284    | 270    | 157    | 108    | 67     |
| KFM 365P  | 365      | 443    | 380    | 303    | 288    | 168    | 115    | 72     |
| KFM 380P  | 380      | 462    | 395    | 315    | 300    | 175    | 120    | 74     |
| KFM 420P  | 420      | 510    | 437    | 349    | 332    | 193    | 132    | 82     |
| KFM 455P  | 455      | 553    | 473    | 378    | 359    | 209    | 143    | 89     |
| KFM 464P  | 464      | 564    | 483    | 385    | 367    | 213    | 146    | 91     |
| KFM 470P  | 470      | 571    | 489    | 390    | 371    | 216    | 148    | 92     |
| KFM 490P  | 490      | 595    | 510    | 407    | 387    | 225    | 154    | 96     |
| KFM 500P  | 500      | 608    | 520    | 415    | 395    | 230    | 158    | 98     |
| KFM 525P  | 525      | 638    | 546    | 436    | 415    | 242    | 165    | 103    |
| KFM 530P  | 530      | 644    | 551    | 440    | 419    | 244    | 167    | 104    |
| KFM 541P  | 541      | 657    | 563    | 449    | 427    | 249    | 170    | 106    |
| KFM 694P  | 694      | 843    | 722    | 576    | 548    | 319    | 219    | 136    |
| KFM 890P  | 890      | 1081   | 926    | 739    | 703    | 409    | 280    | 174    |
| KFM 921P  | 921      | 1119   | 958    | 764    | 728    | 424    | 290    | 181    |
| KFM 960P  | 960      | 1166   | 998    | 797    | 758    | 442    | 302    | 188    |
| KFM 1063P | 1063     | 1292   | 1106   | 882    | 840    | 489    | 335    | 208    |
| KFM 1155P | 1155     | 1403   | 1201   | 959    | 912    | 531    | 364    | 226    |
| KFM 1167P | 1167     | 1418   | 1214   | 969    | 922    | 537    | 368    | 229    |
| KFM 1267P | 1267     | 1539   | 1318   | 1052   | 1001   | 583    | 399    | 248    |
| KFM 1283P | 1283     | 1559   | 1334   | 1065   | 1014   | 590    | 404    | 251    |
| KFM 1288P | 1288     | 1565   | 1340   | 1069   | 1018   | 592    | 406    | 252    |
| KFM 1350P | 1350     | 1640   | 1404   | 1121   | 1067   | 621    | 425    | 265    |
| KFM 1391P | 1391     | 1690   | 1447   | 1155   | 1099   | 640    | 438    | 273    |

## Performance data - KFM - range

Discharge currents in Amperes at 20  $\pm$  5°C for a fully charged cell to ECV 1.05V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|
| KFM 28P   | 28       | 41     | 34     | 27     | 25     | 13     | 9      | 5.5    |
| KFM 30P   | 30       | 44     | 37     | 29     | 27     | 14     | 10     | 5.9    |
| KFM 35P   | 35       | 51     | 43     | 34     | 31     | 17     | 11     | 6.9    |
| KFM 49P   | 49       | 71     | 60     | 48     | 44     | 24     | 16     | 9.7    |
| KFM 65P   | 65       | 94     | 79     | 63     | 58     | 31     | 21     | 12.9   |
| KFM 70P   | 70       | 102    | 85     | 68     | 63     | 34     | 23     | 13.9   |
| KFM 83P   | 83       | 120    | 101    | 81     | 74     | 40     | 27     | 16.4   |
| KFM 96P   | 96       | 139    | 117    | 93     | 86     | 46     | 31     | 19.0   |
| KFM 120P  | 120      | 174    | 146    | 116    | 107    | 58     | 39     | 23.8   |
| KFM 125P  | 125      | 181    | 153    | 121    | 112    | 60     | 41     | 24.8   |
| KFM 136P  | 136      | 197    | 166    | 132    | 122    | 65     | 44     | 26.9   |
| KFM 145P  | 145      | 210    | 177    | 141    | 130    | 70     | 47     | 28.7   |
| KFM 160P  | 160      | 230    | 194    | 155    | 143    | 77     | 52     | 31.7   |
| KFM 168P  | 168      | 242    | 203    | 163    | 150    | 81     | 54     | 33.3   |
| KFM 192P  | 192      | 276    | 232    | 186    | 172    | 92     | 62     | 38.0   |
| KFM 210P  | 210      | 302    | 254    | 204    | 188    | 101    | 68     | 41.6   |
| KFM 245P  | 245      | 353    | 296    | 238    | 219    | 116    | 79     | 48.5   |
| KFM 255P  | 255      | 367    | 309    | 247    | 228    | 121    | 83     | 50.5   |
| KFM 288P  | 288      | 415    | 348    | 279    | 258    | 137    | 93     | 57.0   |
| KFM 300P  | 300      | 432    | 363    | 291    | 269    | 143    | 97     | 59.4   |
| KFM 315P  | 315      | 454    | 381    | 306    | 282    | 150    | 102    | 62.4   |
| KFM 329P  | 329      | 474    | 398    | 319    | 294    | 156    | 107    | 65.1   |
| KFM 342P  | 342      | 492    | 414    | 332    | 306    | 162    | 111    | 67.7   |
| KFM 365P  | 365      | 526    | 442    | 354    | 327    | 173    | 118    | 72.3   |
| KFM 380P  | 380      | 547    | 460    | 369    | 340    | 181    | 123    | 75.2   |
| KFM 420P  | 420      | 605    | 508    | 407    | 376    | 200    | 136    | 83.2   |
| KFM 455P  | 455      | 655    | 551    | 441    | 407    | 216    | 147    | 90.1   |
| KFM 464P  | 464      | 668    | 561    | 450    | 415    | 220    | 150    | 91.9   |
| KFM 470P  | 470      | 677    | 569    | 456    | 421    | 223    | 152    | 93.1   |
| KFM 490P  | 490      | 706    | 593    | 475    | 439    | 233    | 159    | 97.0   |
| KFM 500P  | 500      | 720    | 605    | 485    | 448    | 238    | 162    | 99.0   |
| KFM 525P  | 525      | 756    | 635    | 509    | 470    | 249    | 170    | 104    |
| KFM 530P  | 530      | 763    | 641    | 514    | 474    | 252    | 172    | 105    |
| KFM 541P  | 541      | 779    | 655    | 525    | 484    | 257    | 175    | 107    |
| KFM 694P  | 694      | 999    | 840    | 673    | 621    | 330    | 225    | 137    |
| KFM 890P  | 890      | 1282   | 1077   | 863    | 797    | 423    | 288    | 176    |
| KFM 921P  | 921      | 1326   | 1114   | 893    | 824    | 437    | 298    | 182    |
| KFM 960P  | 960      | 1382   | 1162   | 931    | 859    | 456    | 311    | 190    |
| KFM 1063P | 1063     | 1531   | 1286   | 1031   | 951    | 505    | 344    | 210    |
| KFM 1155P | 1155     | 1663   | 1398   | 1120   | 1034   | 549    | 374    | 229    |
| KFM 1167P | 1167     | 1680   | 1412   | 1132   | 1044   | 554    | 378    | 231    |
| KFM 1267P | 1267     | 1824   | 1533   | 1229   | 1134   | 602    | 411    | 251    |
| KFM 1283P | 1283     | 1848   | 1552   | 1245   | 1148   | 609    | 416    | 254    |
| KFM 1288P | 1288     | 1855   | 1558   | 1249   | 1153   | 612    | 417    | 255    |
| KFM 1350P | 1350     | 1944   | 1634   | 1310   | 1208   | 641    | 437    | 267    |
| KFM 1391P | 1391     | 2003   | 1683   | 1349   | 1245   | 661    | 451    | 275    |

## Performance data - KFM - range

Discharge currents in Amperes at 20  $\pm$  5°C for a fully charged cell to ECV 1.00V/cell

| Cell type | Capacity | 20 min | 30 min | 45 min | 1 hour | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|--------|--------|--------|--------|--------|
| KFM 28P   | 28       | 46     | 40     | 29     | 26     | 14     | 9      | 5.6    |
| KFM 30P   | 30       | 50     | 43     | 31     | 28     | 15     | 10     | 6.0    |
| KFM 35P   | 35       | 58     | 50     | 36     | 32     | 17     | 11     | 7.0    |
| KFM 49P   | 49       | 81     | 70     | 50     | 45     | 24     | 16     | 9.8    |
| KFM 65P   | 65       | 107    | 93     | 67     | 60     | 32     | 21     | 13.0   |
| KFM 70P   | 70       | 116    | 100    | 72     | 64     | 34     | 23     | 14.0   |
| KFM 83P   | 83       | 137    | 119    | 85     | 76     | 41     | 27     | 16.6   |
| KFM 96P   | 96       | 158    | 137    | 99     | 88     | 47     | 32     | 19.2   |
| KFM 120P  | 120      | 198    | 172    | 124    | 110    | 59     | 40     | 24.0   |
| KFM 125P  | 125      | 206    | 179    | 129    | 115    | 61     | 41     | 25.0   |
| KFM 136P  | 136      | 224    | 194    | 140    | 125    | 67     | 45     | 27.2   |
| KFM 145P  | 145      | 239    | 207    | 149    | 133    | 71     | 48     | 29.0   |
| KFM 160P  | 160      | 262    | 227    | 165    | 147    | 78     | 53     | 32.0   |
| KFM 168P  | 168      | 276    | 239    | 173    | 155    | 82     | 55     | 33.6   |
| KFM 192P  | 192      | 315    | 273    | 198    | 177    | 94     | 63     | 38.4   |
| KFM 210P  | 210      | 344    | 298    | 216    | 193    | 103    | 69     | 42.0   |
| KFM 245P  | 245      | 402    | 348    | 252    | 225    | 120    | 81     | 49.0   |
| KFM 255P  | 255      | 418    | 362    | 263    | 235    | 125    | 84     | 51.0   |
| KFM 288P  | 288      | 472    | 409    | 297    | 265    | 141    | 95     | 57.6   |
| KFM 300P  | 300      | 492    | 426    | 309    | 276    | 147    | 99     | 60.0   |
| KFM 315P  | 315      | 517    | 447    | 324    | 290    | 154    | 104    | 63.0   |
| KFM 329P  | 329      | 540    | 467    | 339    | 303    | 161    | 109    | 65.8   |
| KFM 342P  | 342      | 561    | 486    | 352    | 315    | 168    | 113    | 68.4   |
| KFM 365P  | 365      | 599    | 518    | 376    | 336    | 179    | 120    | 73.0   |
| KFM 380P  | 380      | 623    | 540    | 391    | 350    | 186    | 125    | 76.0   |
| KFM 420P  | 420      | 689    | 596    | 433    | 386    | 206    | 139    | 84.0   |
| KFM 455P  | 455      | 746    | 646    | 469    | 419    | 223    | 150    | 91.0   |
| KFM 464P  | 464      | 761    | 659    | 478    | 427    | 227    | 153    | 92.8   |
| KFM 470P  | 470      | 771    | 667    | 484    | 432    | 230    | 155    | 94.0   |
| KFM 490P  | 490      | 804    | 696    | 505    | 451    | 240    | 162    | 98.0   |
| KFM 500P  | 500      | 820    | 710    | 515    | 460    | 245    | 165    | 100    |
| KFM 525P  | 525      | 861    | 746    | 541    | 483    | 257    | 173    | 105    |
| KFM 530P  | 530      | 869    | 753    | 546    | 488    | 260    | 175    | 106    |
| KFM 541P  | 541      | 887    | 768    | 557    | 498    | 265    | 179    | 108    |
| KFM 694P  | 694      | 1138   | 985    | 715    | 638    | 340    | 229    | 139    |
| KFM 890P  | 890      | 1460   | 1264   | 917    | 819    | 436    | 294    | 178    |
| KFM 921P  | 921      | 1510   | 1308   | 949    | 847    | 451    | 304    | 184    |
| KFM 960P  | 960      | 1574   | 1363   | 989    | 883    | 470    | 317    | 192    |
| KFM 1063P | 1063     | 1743   | 1509   | 1095   | 978    | 521    | 351    | 213    |
| KFM 1155P | 1155     | 1894   | 1640   | 1190   | 1063   | 566    | 381    | 231    |
| KFM 1167P | 1167     | 1914   | 1657   | 1202   | 1074   | 572    | 385    | 233    |
| KFM 1267P | 1267     | 2078   | 1799   | 1305   | 1166   | 621    | 418    | 253    |
| KFM 1283P | 1283     | 2104   | 1822   | 1321   | 1180   | 629    | 423    | 256    |
| KFM 1288P | 1288     | 2111   | 1828   | 1326   | 1184   | 631    | 425    | 257    |
| KFM 1350P | 1350     | 2214   | 1917   | 1391   | 1242   | 662    | 446    | 270    |
| KFM 1391P | 1391     | 2281   | 1975   | 1433   | 1280   | 682    | 459    | 278    |

## Performance data - KFH - range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.14V/cell

| Cell type | Capacity | 10 sec | 30 sec | 1 min | 5 min | 10 min | 20 min | 30 min | 60 min | 90 min | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| KFH 20P   | 20       | 105    | 91     | 78    | 50    | 40     | 30     | 24     | 16     | 11     | 9      | 6      | 4      |
| KFH 35P   | 35       | 184    | 159    | 137   | 88    | 70     | 52     | 43     | 29     | 20     | 16     | 11     | 7      |
| KFH 45P   | 45       | 236    | 204    | 176   | 113   | 90     | 67     | 55     | 37     | 26     | 20     | 14     | 8      |
| KFH 60P   | 60       | 315    | 272    | 234   | 150   | 120    | 89     | 73     | 49     | 34     | 27     | 18     | 11     |
| KFH 75P   | 75       | 394    | 341    | 293   | 188   | 150    | 111    | 92     | 62     | 43     | 33     | 23     | 14     |
| KFH 80P   | 80       | 420    | 363    | 312   | 200   | 160    | 118    | 98     | 66     | 46     | 35     | 24     | 15     |
| KFH 90P   | 90       | 473    | 409    | 351   | 225   | 180    | 133    | 110    | 74     | 52     | 40     | 27     | 17     |
| KFH 110P  | 110      | 578    | 499    | 429   | 275   | 220    | 163    | 134    | 90     | 63     | 49     | 33     | 20     |
| KFH 120P  | 120      | 630    | 545    | 468   | 300   | 240    | 178    | 146    | 98     | 69     | 53     | 36     | 22     |
| KFH 135P  | 135      | 709    | 613    | 527   | 338   | 270    | 200    | 165    | 111    | 77     | 60     | 41     | 25     |
| KFH 140P  | 140      | 735    | 636    | 546   | 350   | 280    | 207    | 171    | 115    | 80     | 62     | 42     | 26     |
| KFH 145P  | 145      | 761    | 658    | 566   | 363   | 290    | 215    | 177    | 119    | 83     | 64     | 44     | 27     |
| KFH 160P  | 160      | 840    | 726    | 624   | 400   | 320    | 237    | 195    | 131    | 92     | 71     | 48     | 30     |
| KFH 180P  | 180      | 945    | 817    | 702   | 450   | 360    | 266    | 220    | 148    | 103    | 80     | 55     | 33     |
| KFH 200P  | 200      | 1055   | 913    | 784   | 503   | 402    | 297    | 245    | 165    | 115    | 89     | 61     | 38     |
| KFH 220P  | 220      | 1155   | 999    | 858   | 550   | 440    | 326    | 268    | 180    | 126    | 97     | 67     | 41     |
| KFH 235P  | 235      | 1234   | 1067   | 917   | 588   | 470    | 348    | 287    | 193    | 135    | 104    | 71     | 44     |
| KFH 250P  | 250      | 1313   | 1135   | 975   | 625   | 500    | 370    | 305    | 205    | 143    | 111    | 76     | 47     |
| KFH 255P  | 255      | 1339   | 1158   | 995   | 638   | 510    | 377    | 311    | 209    | 146    | 113    | 77     | 47     |
| KFH 260P  | 260      | 1365   | 1180   | 1014  | 650   | 520    | 385    | 317    | 213    | 149    | 115    | 79     | 48     |
| KFH 276P  | 276      | 1449   | 1253   | 1076  | 690   | 552    | 408    | 337    | 226    | 158    | 122    | 84     | 51     |
| KFH 300P  | 300      | 1575   | 1362   | 1170  | 750   | 600    | 444    | 366    | 246    | 172    | 133    | 91     | 56     |
| KFH 316P  | 316      | 1659   | 1435   | 1232  | 790   | 632    | 468    | 386    | 259    | 181    | 140    | 96     | 59     |
| KFH 342P  | 342      | 1796   | 1553   | 1334  | 855   | 684    | 506    | 417    | 280    | 196    | 152    | 104    | 64     |
| KFH 354P  | 354      | 1805   | 1558   | 1310  | 881   | 690    | 522    | 421    | 290    | 203    | 157    | 107    | 66     |
| KFH 390P  | 390      | 1989   | 1716   | 1443  | 971   | 761    | 575    | 464    | 290    | 223    | 173    | 118    | 73     |
| KFH 414P  | 414      | 2088   | 1797   | 1490  | 1027  | 787    | 609    | 489    | 335    | 237    | 183    | 125    | 77     |
| KFH 450P  | 450      | 2270   | 1953   | 1620  | 1116  | 855    | 662    | 531    | 365    | 258    | 199    | 136    | 84     |
| KFH 474P  | 474      | 2389   | 2057   | 1706  | 1176  | 901    | 697    | 559    | 384    | 272    | 210    | 144    | 88     |
| KFH 513P  | 513      | 2586   | 2226   | 1847  | 1272  | 975    | 754    | 605    | 416    | 294    | 227    | 155    | 95     |
| KFH 520P  | 520      | 2623   | 2257   | 1872  | 1290  | 988    | 764    | 614    | 421    | 298    | 230    | 158    | 97     |
| KFH 552P  | 552      | 2782   | 2396   | 1987  | 1369  | 1049   | 811    | 651    | 447    | 316    | 245    | 167    | 103    |
| KFH 600P  | 600      | 3024   | 2604   | 2160  | 1488  | 1140   | 882    | 708    | 486    | 344    | 266    | 182    | 112    |
| KFH 632P  | 632      | 3186   | 2743   | 2275  | 1567  | 1201   | 929    | 746    | 512    | 362    | 280    | 191    | 118    |
| KFH 650P  | 650      | 3276   | 2821   | 2340  | 1612  | 1235   | 956    | 767    | 527    | 372    | 288    | 197    | 121    |
| KFH 684P  | 684      | 3448   | 2969   | 2462  | 1696  | 1300   | 1005   | 807    | 554    | 392    | 303    | 207    | 127    |
| KFH 708P  | 708      | 3569   | 3073   | 2549  | 1756  | 1345   | 1041   | 835    | 573    | 406    | 314    | 215    | 132    |
| KFH 750P  | 750      | 3782   | 3255   | 2700  | 1860  | 1425   | 1103   | 885    | 608    | 430    | 332    | 227    | 140    |
| KFH 780P  | 780      | 3934   | 3385   | 2808  | 1934  | 1482   | 1147   | 920    | 632    | 447    | 346    | 236    | 145    |
| KFH 828P  | 828      | 4176   | 3594   | 2981  | 2053  | 1573   | 1217   | 977    | 671    | 474    | 367    | 251    | 154    |
| KFH 855P  | 855      | 4312   | 3711   | 3078  | 2120  | 1625   | 1257   | 1009   | 693    | 490    | 379    | 259    | 159    |
| KFH 900P  | 900      | 4539   | 3906   | 3240  | 2232  | 1710   | 1323   | 1062   | 729    | 516    | 399    | 273    | 167    |
| KFH 948P  | 948      | 4781   | 4114   | 3413  | 2351  | 1801   | 1394   | 1119   | 768    | 543    | 420    | 287    | 176    |
| KFH 1026P | 1026     | 5175   | 4453   | 3694  | 2544  | 1949   | 1508   | 1211   | 841    | 588    | 455    | 311    | 191    |

## Performance data - KFH - range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.10V/cell

| Cell type | Capacity | 10 sec | 30 sec | 1 min | 5 min | 10 min | 20 min | 30 min | 60 min | 90 min | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| KFH 20P   | 20       | 116    | 106    | 92    | 60    | 48     | 35     | 30     | 17     | 12     | 9      | 6      | 3.8    |
| KFH 35P   | 35       | 203    | 186    | 161   | 105   | 84     | 62     | 53     | 30     | 21     | 16     | 11     | 6.7    |
| KFH 45P   | 45       | 261    | 239    | 207   | 135   | 108    | 80     | 68     | 39     | 27     | 21     | 14     | 8.6    |
| KFH 60P   | 60       | 348    | 318    | 276   | 180   | 144    | 106    | 90     | 52     | 36     | 28     | 19     | 11.5   |
| KFH 75P   | 75       | 435    | 398    | 345   | 225   | 180    | 133    | 113    | 65     | 45     | 35     | 24     | 14.3   |
| KFH 80P   | 80       | 464    | 424    | 368   | 240   | 192    | 142    | 120    | 70     | 48     | 37     | 25     | 15.3   |
| KFH 90P   | 90       | 522    | 477    | 414   | 270   | 216    | 159    | 135    | 78     | 55     | 42     | 28     | 17.2   |
| KFH 110P  | 110      | 638    | 583    | 506   | 330   | 264    | 195    | 165    | 96     | 67     | 51     | 35     | 21     |
| KFH 120P  | 120      | 696    | 636    | 552   | 360   | 288    | 212    | 180    | 104    | 73     | 55     | 38     | 22.9   |
| KFH 135P  | 135      | 783    | 716    | 621   | 405   | 324    | 239    | 203    | 117    | 82     | 62     | 42     | 25.8   |
| KFH 140P  | 140      | 812    | 742    | 644   | 420   | 336    | 248    | 210    | 122    | 85     | 65     | 44     | 26.7   |
| KFH 145P  | 145      | 841    | 769    | 667   | 435   | 348    | 257    | 218    | 126    | 88     | 67     | 46     | 27.7   |
| KFH 160P  | 160      | 928    | 848    | 736   | 480   | 384    | 283    | 240    | 139    | 97     | 74     | 50     | 30.6   |
| KFH 180P  | 180      | 1044   | 954    | 828   | 540   | 432    | 319    | 270    | 157    | 109    | 83     | 57     | 34.4   |
| KFH 200P  | 200      | 1160   | 1060   | 920   | 600   | 480    | 354    | 300    | 174    | 121    | 92     | 63     | 38.2   |
| KFH 220P  | 220      | 1276   | 1166   | 1012  | 660   | 528    | 389    | 330    | 191    | 133    | 102    | 69     | 42.0   |
| KFH 235P  | 235      | 1363   | 1246   | 1081  | 705   | 564    | 416    | 353    | 204    | 142    | 109    | 74     | 44.9   |
| KFH 250P  | 250      | 1450   | 1325   | 1150  | 750   | 600    | 443    | 375    | 218    | 152    | 116    | 79     | 47.8   |
| KFH 255P  | 255      | 1479   | 1352   | 1173  | 765   | 612    | 451    | 383    | 222    | 155    | 118    | 80     | 48.7   |
| KFH 260P  | 260      | 1508   | 1378   | 1196  | 780   | 624    | 460    | 390    | 226    | 158    | 120    | 82     | 49.7   |
| KFH 276P  | 276      | 1601   | 1463   | 1270  | 828   | 662    | 489    | 414    | 240    | 167    | 128    | 87     | 52.7   |
| KFH 300P  | 300      | 1740   | 1590   | 1380  | 900   | 720    | 531    | 450    | 261    | 182    | 139    | 94     | 57.3   |
| KFH 316P  | 316      | 1833   | 1675   | 1454  | 948   | 758    | 559    | 474    | 275    | 191    | 146    | 99     | 60.4   |
| KFH 342P  | 342      | 1984   | 1813   | 1573  | 1026  | 821    | 605    | 513    | 298    | 207    | 158    | 107    | 65.3   |
| KFH 354P  | 354      | 2018   | 1805   | 1611  | 1055  | 832    | 623    | 522    | 308    | 215    | 164    | 111    | 67.6   |
| KFH 390P  | 390      | 2223   | 1989   | 1775  | 1162  | 917    | 686    | 575    | 339    | 236    | 180    | 122    | 74.5   |
| KFH 414P  | 414      | 2318   | 2153   | 1725  | 1192  | 973    | 725    | 589    | 360    | 251    | 191    | 130    | 79.1   |
| KFH 450P  | 450      | 2475   | 2205   | 1875  | 1296  | 1058   | 788    | 641    | 392    | 273    | 208    | 141    | 86.0   |
| KFH 474P  | 474      | 2607   | 2323   | 2133  | 1408  | 1090   | 830    | 687    | 412    | 287    | 219    | 149    | 90.5   |
| KFH 513P  | 513      | 2822   | 2514   | 2309  | 1524  | 1180   | 898    | 744    | 446    | 311    | 237    | 161    | 98.0   |
| KFH 520P  | 520      | 2860   | 2548   | 2340  | 1544  | 1196   | 910    | 754    | 452    | 315    | 240    | 163    | 99.3   |
| KFH 552P  | 552      | 3036   | 2705   | 2484  | 1639  | 1270   | 966    | 800    | 480    | 335    | 255    | 173    | 105.4  |
| KFH 600P  | 600      | 3300   | 2940   | 2700  | 1782  | 1380   | 1050   | 870    | 522    | 364    | 277    | 188    | 114.6  |
| KFH 632P  | 632      | 3476   | 3097   | 2844  | 1877  | 1454   | 1106   | 916    | 550    | 383    | 292    | 198    | 120.7  |
| KFH 650P  | 650      | 3510   | 3185   | 2925  | 1931  | 1495   | 1138   | 943    | 566    | 394    | 300    | 204    | 124.2  |
| KFH 684P  | 684      | 3694   | 3352   | 3078  | 2031  | 1573   | 1197   | 992    | 595    | 415    | 316    | 215    | 130.6  |
| KFH 708P  | 708      | 3823   | 3469   | 3186  | 2103  | 1628   | 1239   | 1027   | 616    | 429    | 327    | 222    | 135.2  |
| KFH 750P  | 750      | 4050   | 3675   | 3375  | 2228  | 1725   | 1313   | 1088   | 653    | 455    | 347    | 236    | 143.3  |
| KFH 780P  | 780      | 4212   | 3822   | 3510  | 2317  | 1794   | 1365   | 1131   | 679    | 473    | 360    | 245    | 149.0  |
| KFH 828P  | 828      | 4471   | 4057   | 3726  | 2459  | 1904   | 1449   | 1201   | 720    | 502    | 383    | 260    | 158.1  |
| KFH 855P  | 855      | 4617   | 4190   | 3848  | 2539  | 1967   | 1496   | 1240   | 744    | 518    | 395    | 268    | 163.3  |
| KFH 900P  | 900      | 4770   | 4410   | 4050  | 2673  | 2070   | 1575   | 1305   | 783    | 545    | 416    | 283    | 171.9  |
| KFH 948P  | 948      | 5024   | 4645   | 4266  | 2816  | 2180   | 1659   | 1375   | 825    | 574    | 438    | 298    | 181.1  |
| KFH 1026P | 1026     | 5438   | 5027   | 4617  | 3047  | 2360   | 1796   | 1488   | 893    | 622    | 474    | 322    | 196.0  |

## Performance data - KFH - range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.05V/cell

| Cell type | Capacity | 10 sec | 30 sec | 1 min | 5 min | 10 min | 20 min | 30 min | 60 min | 90 min | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| KFH 20P   | 20       | 146    | 124    | 110   | 72    | 60     | 44     | 33     | 18     | 13     | 10     | 7      | 3.9    |
| KFH 35P   | 35       | 256    | 217    | 193   | 126   | 105    | 78     | 58     | 32     | 22     | 17     | 11     | 6.9    |
| KFH 45P   | 45       | 329    | 279    | 248   | 162   | 135    | 100    | 74     | 41     | 28     | 22     | 15     | 8.9    |
| KFH 60P   | 60       | 438    | 372    | 330   | 216   | 180    | 133    | 99     | 55     | 38     | 29     | 20     | 11.8   |
| KFH 75P   | 75       | 548    | 465    | 413   | 270   | 225    | 167    | 124    | 68     | 47     | 36     | 24     | 14.8   |
| KFH 80P   | 80       | 584    | 496    | 440   | 288   | 240    | 178    | 132    | 73     | 50     | 38     | 26     | 15.8   |
| KFH 90P   | 90       | 657    | 558    | 495   | 324   | 270    | 200    | 149    | 82     | 57     | 43     | 29     | 17.7   |
| KFH 110P  | 110      | 803    | 682    | 605   | 396   | 330    | 244    | 182    | 100    | 69     | 53     | 36     | 22     |
| KFH 120P  | 120      | 876    | 744    | 660   | 432   | 360    | 266    | 198    | 109    | 76     | 58     | 39     | 23.6   |
| KFH 135P  | 135      | 986    | 837    | 743   | 486   | 405    | 300    | 223    | 123    | 85     | 65     | 44     | 26.6   |
| KFH 140P  | 140      | 1022   | 868    | 770   | 504   | 420    | 311    | 231    | 127    | 88     | 67     | 46     | 27.6   |
| KFH 145P  | 145      | 1059   | 899    | 798   | 522   | 435    | 322    | 239    | 132    | 91     | 70     | 47     | 28.6   |
| KFH 160P  | 160      | 1168   | 992    | 880   | 576   | 480    | 355    | 264    | 146    | 101    | 77     | 52     | 31.5   |
| KFH 180P  | 180      | 1314   | 1116   | 990   | 648   | 540    | 400    | 297    | 164    | 113    | 86     | 59     | 35.5   |
| KFH 200P  | 200      | 1460   | 1240   | 1100  | 720   | 600    | 444    | 330    | 182    | 126    | 96     | 65     | 39.4   |
| KFH 220P  | 220      | 1606   | 1364   | 1210  | 792   | 660    | 488    | 363    | 200    | 139    | 106    | 72     | 43.3   |
| KFH 235P  | 235      | 1716   | 1457   | 1293  | 846   | 705    | 522    | 388    | 214    | 148    | 113    | 76     | 46.3   |
| KFH 250P  | 250      | 1825   | 1550   | 1375  | 900   | 750    | 555    | 413    | 228    | 158    | 120    | 81     | 49.3   |
| KFH 255P  | 255      | 1862   | 1581   | 1403  | 918   | 765    | 566    | 421    | 232    | 161    | 122    | 83     | 50.2   |
| KFH 260P  | 260      | 1898   | 1612   | 1430  | 936   | 780    | 577    | 429    | 237    | 164    | 125    | 85     | 51.2   |
| KFH 276P  | 276      | 2015   | 1711   | 1518  | 994   | 828    | 613    | 455    | 251    | 174    | 132    | 90     | 54.4   |
| KFH 300P  | 300      | 2190   | 1860   | 1650  | 1080  | 900    | 666    | 495    | 273    | 189    | 144    | 98     | 59.1   |
| KFH 316P  | 316      | 2307   | 1959   | 1738  | 1138  | 948    | 702    | 521    | 288    | 199    | 152    | 103    | 62.3   |
| KFH 342P  | 342      | 2497   | 2120   | 1881  | 1231  | 1026   | 759    | 564    | 311    | 215    | 164    | 111    | 67.4   |
| KFH 354P  | 354      | 2549   | 2159   | 1929  | 1239  | 1044   | 779    | 581    | 322    | 223    | 170    | 115    | 69.7   |
| KFH 390P  | 390      | 2808   | 2379   | 2126  | 1365  | 1151   | 858    | 640    | 355    | 246    | 187    | 127    | 76.8   |
| KFH 414P  | 414      | 2857   | 2401   | 2244  | 1408  | 1201   | 907    | 675    | 377    | 261    | 199    | 135    | 81.6   |
| KFH 450P  | 450      | 3105   | 2610   | 2439  | 1530  | 1305   | 986    | 734    | 410    | 284    | 216    | 146    | 88.7   |
| KFH 474P  | 474      | 3271   | 2749   | 2569  | 1612  | 1375   | 1038   | 773    | 431    | 299    | 228    | 154    | 93.4   |
| KFH 513P  | 513      | 3540   | 2975   | 2780  | 1744  | 1488   | 1123   | 836    | 467    | 323    | 246    | 167    | 101.1  |
| KFH 520P  | 520      | 3588   | 3016   | 2818  | 1768  | 1508   | 1139   | 848    | 473    | 328    | 250    | 169    | 102.4  |
| KFH 552P  | 552      | 3809   | 3202   | 2992  | 1877  | 1601   | 1209   | 900    | 502    | 348    | 265    | 179    | 108.7  |
| KFH 600P  | 600      | 4140   | 3480   | 3252  | 2040  | 1740   | 1314   | 978    | 546    | 378    | 288    | 195    | 118.2  |
| KFH 632P  | 632      | 4361   | 3666   | 3425  | 2149  | 1833   | 1384   | 1030   | 575    | 398    | 303    | 205    | 124.5  |
| KFH 650P  | 650      | 4485   | 3770   | 3523  | 2210  | 1885   | 1424   | 1060   | 592    | 410    | 312    | 211    | 128.1  |
| KFH 684P  | 684      | 4720   | 3967   | 3707  | 2326  | 1984   | 1498   | 1115   | 622    | 431    | 328    | 222    | 134.7  |
| KFH 708P  | 708      | 4885   | 4106   | 3837  | 2407  | 2053   | 1551   | 1154   | 644    | 446    | 340    | 230    | 139.5  |
| KFH 750P  | 750      | 5175   | 4350   | 4065  | 2550  | 2175   | 1643   | 1223   | 683    | 473    | 360    | 244    | 147.8  |
| KFH 780P  | 780      | 5382   | 4524   | 4228  | 2652  | 2262   | 1708   | 1271   | 710    | 491    | 374    | 254    | 153.7  |
| KFH 828P  | 828      | 5713   | 4802   | 4488  | 2841  | 2390   | 1813   | 1350   | 753    | 522    | 397    | 269    | 163.1  |
| KFH 855P  | 855      | 5900   | 4959   | 4634  | 2934  | 2468   | 1872   | 1394   | 778    | 539    | 410    | 278    | 168.4  |
| KFH 900P  | 900      | 6210   | 5220   | 4878  | 3060  | 2592   | 1971   | 1467   | 819    | 567    | 432    | 293    | 177.3  |
| KFH 948P  | 948      | 6541   | 5498   | 5138  | 3223  | 2730   | 2076   | 1545   | 863    | 597    | 455    | 308    | 186.8  |
| KFH 1026P | 1026     | 7079   | 5951   | 5561  | 3488  | 2955   | 2247   | 1672   | 934    | 646    | 492    | 333    | 202.1  |

## Performance data - KFH - range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 1.00V/cell

| Cell type | Capacity | 10 sec | 30 sec | 1 min | 5 min | 10 min | 20 min | 30 min | 60 min | 90 min | 2 hour | 3 hour | 5 hour |
|-----------|----------|--------|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| KFH 20P   | 20       | 164    | 142    | 124   | 91    | 68     | 47     | 35     | 19     | 13     | 10     | 7      | 4.0    |
| KFH 35P   | 35       | 287    | 249    | 217   | 159   | 120    | 82     | 62     | 33     | 23     | 17     | 12     | 7.0    |
| KFH 45P   | 45       | 369    | 320    | 279   | 204   | 154    | 106    | 79     | 42     | 29     | 22     | 15     | 9.0    |
| KFH 60P   | 60       | 492    | 426    | 372   | 272   | 205    | 141    | 106    | 56     | 39     | 29     | 20     | 12.0   |
| KFH 75P   | 75       | 615    | 533    | 465   | 340   | 257    | 176    | 132    | 71     | 48     | 37     | 25     | 15.0   |
| KFH 80P   | 80       | 656    | 568    | 496   | 362   | 274    | 188    | 141    | 75     | 51     | 39     | 26     | 16.0   |
| KFH 90P   | 90       | 738    | 639    | 558   | 408   | 308    | 212    | 158    | 85     | 58     | 44     | 30     | 18.0   |
| KFH 110P  | 110      | 902    | 781    | 682   | 498   | 376    | 259    | 194    | 103    | 71     | 54     | 36     | 22     |
| KFH 120P  | 120      | 984    | 852    | 744   | 544   | 410    | 282    | 211    | 113    | 77     | 59     | 39     | 24.0   |
| KFH 135P  | 135      | 1107   | 959    | 837   | 612   | 462    | 317    | 238    | 127    | 87     | 66     | 44     | 27.0   |
| KFH 140P  | 140      | 1148   | 994    | 868   | 634   | 479    | 329    | 246    | 132    | 90     | 68     | 46     | 28.0   |
| KFH 145P  | 145      | 1189   | 1030   | 899   | 657   | 496    | 341    | 255    | 136    | 93     | 71     | 48     | 29.0   |
| KFH 160P  | 160      | 1312   | 1136   | 992   | 725   | 547    | 376    | 282    | 150    | 103    | 78     | 53     | 32.0   |
| KFH 180P  | 180      | 1476   | 1278   | 1116  | 815   | 616    | 423    | 317    | 169    | 116    | 88     | 59     | 36.0   |
| KFH 200P  | 200      | 1640   | 1420   | 1240  | 906   | 684    | 470    | 352    | 188    | 129    | 98     | 66     | 40.0   |
| KFH 220P  | 220      | 1804   | 1562   | 1364  | 997   | 752    | 517    | 387    | 207    | 141    | 107    | 72     | 44.0   |
| KFH 235P  | 235      | 1927   | 1669   | 1457  | 1065  | 800    | 552    | 414    | 221    | 151    | 115    | 77     | 47.0   |
| KFH 250P  | 250      | 2050   | 1775   | 1550  | 1133  | 860    | 588    | 440    | 235    | 161    | 122    | 82     | 50.0   |
| KFH 255P  | 255      | 2091   | 1811   | 1581  | 1155  | 877    | 599    | 449    | 240    | 164    | 124    | 84     | 51.0   |
| KFH 260P  | 260      | 2132   | 1846   | 1612  | 1178  | 894    | 611    | 458    | 244    | 167    | 127    | 86     | 52.0   |
| KFH 276P  | 276      | 2263   | 1960   | 1711  | 1250  | 940    | 649    | 486    | 259    | 177    | 135    | 91     | 55.2   |
| KFH 300P  | 300      | 2460   | 2130   | 1860  | 1359  | 1012   | 705    | 528    | 282    | 193    | 146    | 99     | 60.0   |
| KFH 316P  | 316      | 2591   | 2244   | 1959  | 1431  | 1066   | 743    | 556    | 297    | 203    | 154    | 104    | 63.2   |
| KFH 342P  | 342      | 2804   | 2428   | 2120  | 1549  | 1154   | 804    | 602    | 321    | 220    | 167    | 113    | 68.4   |
| KFH 354P  | 354      | 2867   | 2496   | 2174  | 1568  | 1172   | 821    | 612    | 333    | 228    | 173    | 116    | 70.8   |
| KFH 390P  | 390      | 3159   | 2750   | 2395  | 1728  | 1291   | 905    | 675    | 367    | 251    | 190    | 128    | 78.0   |
| KFH 414P  | 414      | 3278   | 2898   | 2546  | 1814  | 1350   | 953    | 713    | 389    | 266    | 202    | 136    | 82.8   |
| KFH 450P  | 450      | 3564   | 3150   | 2768  | 1971  | 1467   | 1033   | 768    | 423    | 289    | 220    | 148    | 90.0   |
| KFH 474P  | 474      | 3754   | 3318   | 2915  | 2076  | 1546   | 1088   | 809    | 446    | 305    | 231    | 156    | 94.8   |
| KFH 513P  | 513      | 4062   | 3591   | 3155  | 2247  | 1673   | 1178   | 885    | 482    | 330    | 250    | 169    | 103    |
| KFH 520P  | 520      | 4118   | 3640   | 3198  | 2278  | 1696   | 1194   | 890    | 489    | 334    | 254    | 171    | 104    |
| KFH 552P  | 552      | 4371   | 3864   | 3395  | 2418  | 1800   | 1267   | 942    | 519    | 355    | 269    | 182    | 110    |
| KFH 600P  | 600      | 4751   | 4200   | 3690  | 2628  | 1957   | 1377   | 1024   | 564    | 386    | 293    | 197    | 120    |
| KFH 632P  | 632      | 5005   | 4424   | 3887  | 2768  | 2061   | 1451   | 1078   | 594    | 406    | 308    | 208    | 126    |
| KFH 650P  | 650      | 5147   | 4550   | 3998  | 2847  | 2120   | 1492   | 1109   | 611    | 418    | 317    | 214    | 130    |
| KFH 684P  | 684      | 5417   | 4788   | 4207  | 2996  | 2230   | 1571   | 1167   | 643    | 440    | 334    | 225    | 137    |
| KFH 708P  | 708      | 5607   | 4956   | 4354  | 3101  | 2309   | 1626   | 1214   | 666    | 455    | 346    | 233    | 142    |
| KFH 750P  | 750      | 5939   | 5250   | 4613  | 3285  | 2446   | 1722   | 1280   | 705    | 482    | 366    | 247    | 150    |
| KFH 780P  | 780      | 6177   | 5460   | 4797  | 3416  | 2543   | 1791   | 1331   | 733    | 502    | 381    | 257    | 156    |
| KFH 828P  | 828      | 6557   | 5796   | 5092  | 3627  | 2700   | 1901   | 1415   | 778    | 532    | 404    | 272    | 166    |
| KFH 855P  | 855      | 6771   | 5985   | 5258  | 3745  | 2788   | 1963   | 1459   | 804    | 550    | 417    | 281    | 171    |
| KFH 900P  | 900      | 7127   | 6300   | 5535  | 3942  | 2935   | 2025   | 1536   | 846    | 579    | 439    | 296    | 180    |
| KFH 948P  | 948      | 7507   | 6636   | 5830  | 4152  | 3091   | 2133   | 1618   | 891    | 610    | 463    | 312    | 190    |
| KFH 1026P | 1026     | 8125   | 7182   | 6310  | 4494  | 3346   | 2309   | 1753   | 964    | 660    | 501    | 338    | 205    |



## Performance data - KFH-range

Discharge currents in Amperes at 20  $\pm$  5°C for a fully charged cell to ECV 0.85V/cell

| Cell type | Capacity | 10 sec | 30 sec | 1 min | 5 min | 10 min | 20 min | 30 min |
|-----------|----------|--------|--------|-------|-------|--------|--------|--------|
| KFH 20P   | 20       | 220    | 190    | 164   | 120   | 84     | 54     | 36.4   |
| KFH 35P   | 35       | 385    | 333    | 287   | 210   | 147    | 95     | 63.7   |
| KFH 45P   | 45       | 495    | 428    | 369   | 270   | 189    | 122    | 81.9   |
| KFH 60P   | 60       | 660    | 570    | 492   | 360   | 252    | 162    | 109    |
| KFH 75P   | 75       | 825    | 713    | 615   | 450   | 315    | 203    | 137    |
| KFH 80P   | 80       | 880    | 760    | 656   | 480   | 336    | 216    | 146    |
| KFH 90P   | 90       | 990    | 855    | 738   | 540   | 378    | 243    | 164    |
| KFH 110P  | 110      | 1210   | 1045   | 902   | 660   | 462    | 297    | 200    |
| KFH 120P  | 120      | 1320   | 1140   | 984   | 720   | 504    | 324    | 218    |
| KFH 135P  | 135      | 1485   | 1283   | 1107  | 810   | 567    | 365    | 246    |
| KFH 140P  | 140      | 1540   | 1330   | 1148  | 840   | 588    | 378    | 255    |
| KFH 145P  | 145      | 1595   | 1378   | 1189  | 870   | 609    | 392    | 264    |
| KFH 160P  | 160      | 1760   | 1520   | 1312  | 960   | 672    | 432    | 291    |
| KFH 180P  | 180      | 1980   | 1710   | 1476  | 1080  | 756    | 486    | 328    |
| KFH 200P  | 200      | 2180   | 1840   | 1620  | 1180  | 830    | 537    | 360    |
| KFH 220P  | 220      | 2398   | 2024   | 1782  | 1298  | 913    | 591    | 396    |
| KFH 235P  | 235      | 2562   | 2162   | 1904  | 1387  | 975    | 631    | 423    |
| KFH 250P  | 250      | 2750   | 2300   | 2025  | 1475  | 1050   | 675    | 450    |
| KFH 255P  | 255      | 2805   | 2423   | 2091  | 1530  | 1071   | 689    | 459    |
| KFH 260P  | 260      | 2860   | 2470   | 2132  | 1560  | 1092   | 702    | 468    |
| KFH 276P  | 276      | 3036   | 2622   | 2263  | 1656  | 1159   | 745    | 497    |
| KFH 300P  | 300      | 3300   | 2850   | 2460  | 1800  | 1260   | 810    | 540    |
| KFH 316P  | 316      | 3476   | 3002   | 2591  | 1896  | 1327   | 853    | 569    |
| KFH 342P  | 342      | 3762   | 3249   | 2804  | 2052  | 1436   | 923    | 616    |
| KFH 354P  | 354      | 3894   | 3363   | 2903  | 2124  | 1487   | 956    | 637    |
| KFH 390P  | 390      | 4251   | 3588   | 3159  | 2301  | 1630   | 1048   | 702    |
| KFH 414P  | 414      | 4513   | 3809   | 3271  | 2443  | 1731   | 1112   | 745    |
| KFH 450P  | 450      | 4905   | 4140   | 3555  | 2655  | 1881   | 1209   | 810    |
| KFH 474P  | 474      | 5167   | 4361   | 3745  | 2797  | 1981   | 1274   | 853    |
| KFH 513P  | 513      | 5592   | 4720   | 4053  | 3027  | 2144   | 1378   | 923    |
| KFH 520P  | 520      | 5668   | 4784   | 4108  | 3068  | 2174   | 1397   | 936    |
| KFH 552P  | 552      | 6017   | 5078   | 4361  | 3257  | 2307   | 1483   | 994    |
| KFH 600P  | 600      | 6540   | 5520   | 4740  | 3540  | 2508   | 1612   | 1080   |
| KFH 632P  | 632      | 6889   | 5814   | 4993  | 3729  | 2642   | 1698   | 1138   |
| KFH 650P  | 650      | 7085   | 5980   | 5135  | 3835  | 2717   | 1747   | 1170   |
| KFH 684P  | 684      | 7456   | 6293   | 5404  | 4036  | 2859   | 1838   | 1231   |
| KFH 708P  | 708      | 7717   | 6514   | 5593  | 4177  | 2959   | 1902   | 1274   |
| KFH 750P  | 750      | 8175   | 6900   | 5925  | 4425  | 3135   | 2015   | 1350   |
| KFH 780P  | 780      | 8502   | 7176   | 6162  | 4602  | 3260   | 2096   | 1404   |
| KFH 828P  | 828      | 9025   | 7618   | 6541  | 4885  | 3461   | 2225   | 1490   |
| KFH 855P  | 855      | 9320   | 7866   | 6755  | 5045  | 3574   | 2297   | 1539   |
| KFH 900P  | 900      | 9810   | 8280   | 7110  | 5310  | 3762   | 2418   | 1620   |
| KFH 948P  | 948      | 10333  | 8722   | 7489  | 5593  | 3963   | 2547   | 1706   |
| KFH 1026P | 1026     | 11183  | 9439   | 8105  | 6053  | 4289   | 2757   | 1847   |

## Performance data - KFH-range

Discharge currents in Amperes at 20 ± 5°C for a fully charged cell to ECV 0.65V/cell

| Cell type | Capacity | 10 sec | 30 sec | 1 min | 5 min | 10 min | 20 min | 30 min |
|-----------|----------|--------|--------|-------|-------|--------|--------|--------|
| KFH 20P   | 20       | 270    | 254    | 220   | 156   | 120    | 58     | 39     |
| KFH 35P   | 35       | 473    | 445    | 385   | 273   | 210    | 102    | 68     |
| KFH 45P   | 45       | 608    | 572    | 495   | 351   | 270    | 131    | 87     |
| KFH 60P   | 60       | 810    | 762    | 660   | 468   | 360    | 174    | 116    |
| KFH 75P   | 75       | 1013   | 953    | 825   | 585   | 450    | 218    | 145    |
| KFH 80P   | 80       | 1080   | 1016   | 880   | 624   | 480    | 232    | 154    |
| KFH 90P   | 90       | 1215   | 1143   | 990   | 702   | 540    | 261    | 174    |
| KFH 110P  | 110      | 1485   | 1397   | 1210  | 858   | 660    | 319    | 212    |
| KFH 120P  | 120      | 1620   | 1524   | 1320  | 936   | 720    | 348    | 232    |
| KFH 135P  | 135      | 1823   | 1715   | 1485  | 1053  | 810    | 392    | 261    |
| KFH 140P  | 140      | 1890   | 1778   | 1540  | 1092  | 840    | 406    | 270    |
| KFH 145P  | 145      | 1958   | 1842   | 1595  | 1131  | 870    | 421    | 280    |
| KFH 160P  | 160      | 2160   | 2032   | 1760  | 1240  | 960    | 464    | 309    |
| KFH 180P  | 180      | 2430   | 2286   | 1980  | 1395  | 1080   | 522    | 347    |
| KFH 200P  | 200      | 2500   | 2460   | 2200  | 1550  | 1180   | 572    | 385    |
| KFH 220P  | 220      | 2750   | 2706   | 2354  | 1705  | 1298   | 629    | 424    |
| KFH 235P  | 235      | 2938   | 2891   | 2515  | 1821  | 1387   | 672    | 453    |
| KFH 250P  | 250      | 3375   | 3175   | 2750  | 1950  | 1500   | 715    | 482    |
| KFH 255P  | 255      | 3443   | 3239   | 2805  | 1989  | 1530   | 729    | 491    |
| KFH 260P  | 260      | 3510   | 3302   | 2860  | 2028  | 1560   | 744    | 501    |
| KFH 276P  | 276      | 3726   | 3505   | 3036  | 2153  | 1656   | 789    | 532    |
| KFH 300P  | 300      | 4050   | 3810   | 3300  | 2340  | 1800   | 858    | 578    |
| KFH 316P  | 316      | 4266   | 4013   | 3476  | 2465  | 1896   | 904    | 609    |
| KFH 342P  | 342      | 4617   | 4343   | 3762  | 2668  | 2052   | 978    | 659    |
| KFH 354P  | 354      | 4779   | 4354   | 3894  | 2761  | 2124   | 1012   | 682    |
| KFH 390P  | 390      | 5187   | 4797   | 4173  | 3023  | 2340   | 1115   | 751    |
| KFH 414P  | 414      | 5190   | 4802   | 4306  | 3209  | 2443   | 1184   | 797    |
| KFH 450P  | 450      | 5641   | 5220   | 4680  | 3488  | 2655   | 1287   | 867    |
| KFH 474P  | 474      | 5942   | 5498   | 4930  | 3674  | 2797   | 1356   | 913    |
| KFH 513P  | 513      | 6431   | 5951   | 5335  | 3976  | 3027   | 1467   | 988    |
| KFH 520P  | 520      | 6519   | 6032   | 5408  | 4030  | 3068   | 1487   | 1002   |
| KFH 552P  | 552      | 6920   | 6403   | 5741  | 4278  | 3257   | 1579   | 1063   |
| KFH 600P  | 600      | 7522   | 6960   | 6240  | 4650  | 3540   | 1716   | 1156   |
| KFH 632P  | 632      | 7923   | 7331   | 6573  | 4898  | 3729   | 1808   | 1217   |
| KFH 650P  | 650      | 8149   | 7540   | 6760  | 5038  | 3835   | 1859   | 1252   |
| KFH 684P  | 684      | 8575   | 7934   | 7114  | 5301  | 4036   | 1956   | 1317   |
| KFH 708P  | 708      | 8876   | 8213   | 7363  | 5487  | 4177   | 2025   | 1364   |
| KFH 750P  | 750      | 9402   | 8700   | 7800  | 5813  | 4425   | 2145   | 1445   |
| KFH 780P  | 780      | 9778   | 9048   | 8112  | 6045  | 4602   | 2231   | 1502   |
| KFH 828P  | 828      | 10380  | 9605   | 8611  | 6417  | 4885   | 2368   | 1595   |
| KFH 855P  | 855      | 10719  | 9918   | 8892  | 6626  | 5045   | 2445   | 1647   |
| KFH 900P  | 900      | 11283  | 10440  | 9360  | 6975  | 5310   | 2574   | 1733   |
| KFH 948P  | 948      | 11884  | 10997  | 9859  | 7347  | 5593   | 2711   | 1826   |
| KFH 1026P | 1026     | 12862  | 11902  | 10670 | 7952  | 6053   | 2934   | 1976   |

## BATTERY RACK DIMENSIONS

For safe and reliable operation, batteries should be mounted on suitable battery racks. HBL NIFE battery racks are made of alkali-resistant, powder coated steel sections. Battery racks are available in multi-step one tier or multi-step two tier configuration. Standard battery racks are supplied in knocked-down condition and can be easily assembled at site.

### Evaluation of length :

length of rack = (x + 5) x no. of block cells in a row ( for all block cells )

Where x = length of cell or block cell for row-wise mounting

( i.e. For B11-1, B12-1, B31-1, B32-1, B41-1, B42-1 )

= width of cell or block cell for cross-wise mounting

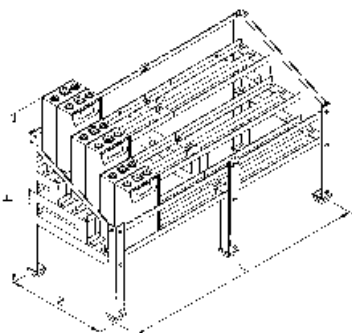
( i.e. For B31/32/41/42-2/3/4/5/6 )

The value of length should be rounded-off to nearest to 50 mm and 5mm should be added.

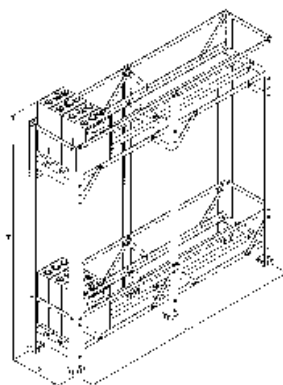
| Container size reference | 1Tier |     |       |     |       |     |       |      | 2Tier |      |       |      |       |      |       |      |
|--------------------------|-------|-----|-------|-----|-------|-----|-------|------|-------|------|-------|------|-------|------|-------|------|
|                          | 1STEP |     | 2STEP |     | 3STEP |     | 4STEP |      | 1STEP |      | 2STEP |      | 3STEP |      | 4STEP |      |
|                          | W     | H   | W     | H   | W     | H   | W     | H    | W     | H    | W     | H    | W     | H    | W     | H    |
| B11-1/B12-1              |       |     | 396   | 683 | 578   | 798 | 764   | 913  |       |      | 392   | 1070 | 578   | 1300 | 764   | 1550 |
| B31-1/B32-1              |       |     | 440   | 788 | 650   | 903 | 860   | 1018 |       |      | 440   | 1400 | 650   | 1620 | 860   | 1850 |
| B41-1/B42-1              |       |     | 440   | 844 | 650   | 959 | 860   | 1074 |       |      | 440   | 1550 | 650   | 1800 | 860   | 2050 |
| B31-2                    |       |     | 416   | 788 | 614   | 903 | 812   | 1018 |       |      | 416   | 1400 | 614   | 1620 | 812   | 1850 |
| B31-3                    |       |     | 586   | 788 | 869   | 903 |       |      |       |      | 586   | 1400 | 869   | 1620 |       |      |
| B31-4                    |       |     | 754   | 788 |       |     |       |      |       |      | 754   | 1400 |       |      |       |      |
| B31-5                    |       |     | 924   | 788 |       |     |       |      | 472   | 1160 | 924   | 1400 |       |      |       |      |
| B31-6                    | 557   | 673 | 1094  | 788 |       |     |       |      | 557   | 1160 |       |      |       |      |       |      |
| B32-2                    |       |     | 304   | 788 | 446   | 903 | 588   | 1018 |       |      | 304   | 1400 | 446   | 1620 | 588   | 1850 |
| B32-3                    |       |     | 424   | 788 | 626   | 903 | 828   | 1018 |       |      | 424   | 1400 | 626   | 1620 | 828   | 1850 |
| B32-4                    |       |     | 544   | 788 | 806   | 903 |       |      |       |      | 544   | 1400 | 806   | 1620 |       |      |
| B32-5                    |       |     | 662   | 788 | 983   | 903 |       |      |       |      | 662   | 1400 | 983   | 1620 |       |      |
| B32-6                    |       |     | 782   | 788 |       |     |       |      |       |      | 782   | 1400 |       |      |       |      |
| B41-2                    |       |     | 416   | 844 | 614   | 959 | 812   | 1074 |       |      | 416   | 1550 | 614   | 1800 | 812   | 2050 |
| B41-3                    |       |     | 586   | 844 | 869   | 959 |       |      |       |      | 586   | 1550 | 869   | 1800 |       |      |
| B41-4                    |       |     | 754   | 844 |       |     |       |      |       |      | 754   | 1550 |       |      |       |      |
| B41-5                    |       |     | 924   | 844 |       |     |       |      | 472   | 1320 | 924   | 1550 |       |      |       |      |
| B41-6                    | 557   | 729 | 1094  | 844 |       |     |       |      | 557   | 1320 |       |      |       |      |       |      |
| B42-2                    |       |     | 304   | 844 | 446   | 959 | 588   | 1074 |       |      | 304   | 1550 | 446   | 1800 | 588   | 2050 |
| B42-3                    |       |     | 424   | 844 | 626   | 959 | 828   | 1074 |       |      | 424   | 1550 | 626   | 1800 |       |      |
| B42-4                    |       |     | 544   | 844 | 806   | 959 |       |      |       |      | 544   | 1550 | 806   | 1800 |       |      |
| B42-5                    |       |     | 662   | 844 | 983   | 959 |       |      |       |      | 662   | 1550 | 983   | 1800 |       |      |
| B42-6                    |       |     | 782   | 844 |       |     |       |      |       |      | 782   | 1550 |       |      |       |      |

(All dimensions in mm)

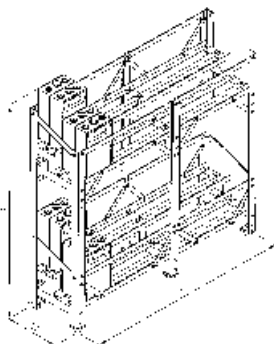
SINGLE TIER RACKS  
3STEP 1TIER RACK



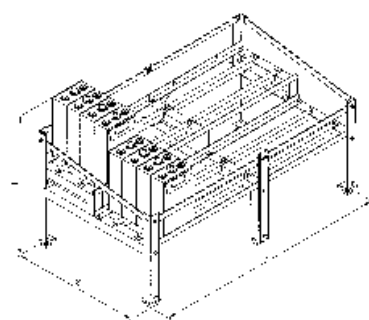
TWO TIER RACKS  
1STEP 2TIER RACK



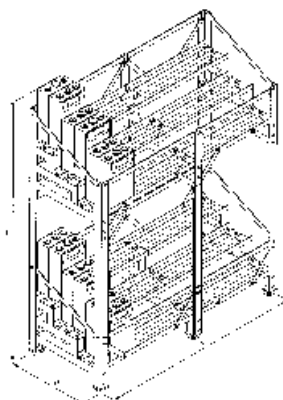
TWO TIER RACKS  
2STEP 2TIER RACK



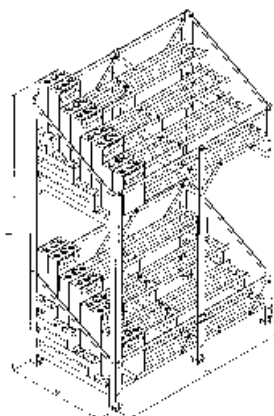
SINGLE TIER RACKS  
2STEP 1TIER RACK



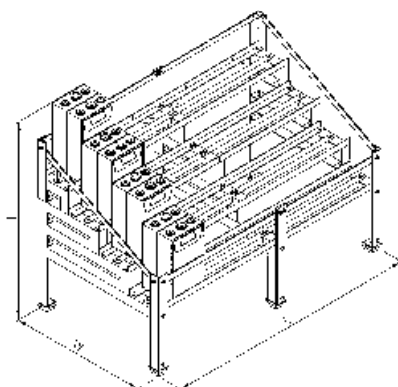
TWO TIER RACKS  
3STEP 2TIER RACK



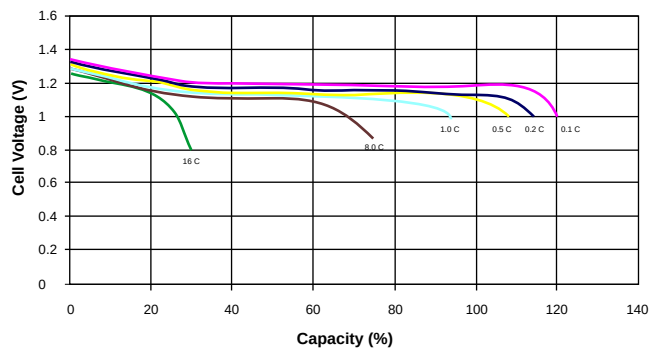
TWO TIER RACKS  
4STEP 2TIER RACK



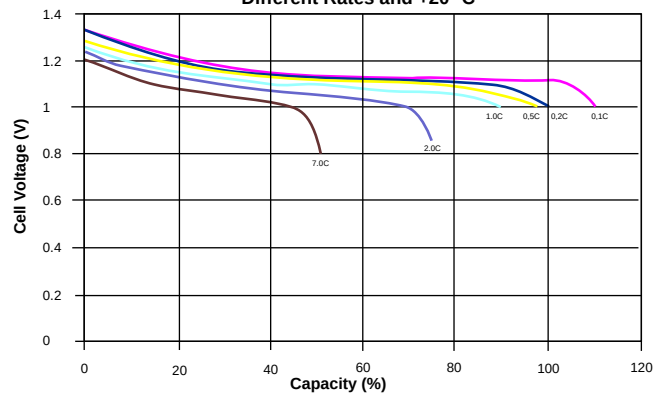
SINGLE TIER RACKS  
4STEP 1TIER RACK



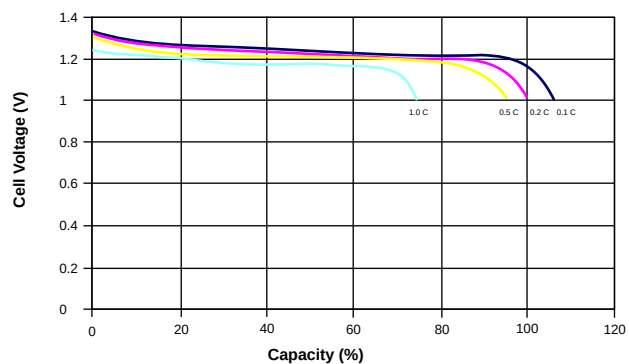
Typical Discharge curves for KFX - type Cell at Different Rates and +20° C



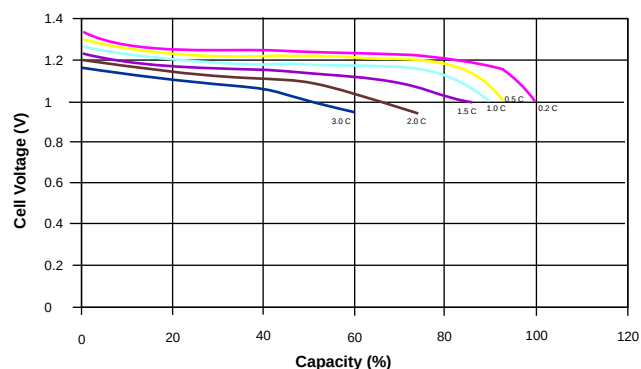
Typical Discharge curves for KFH - type Cell at Different Rates and +20° C



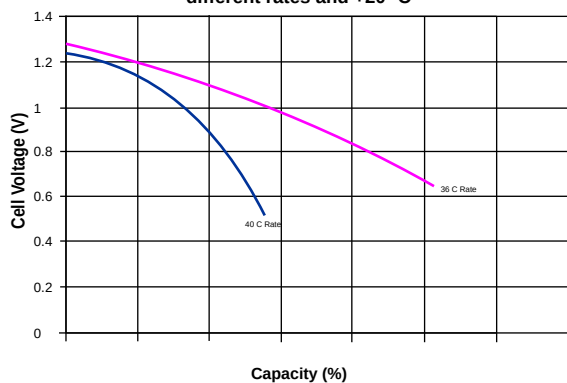
Typical Discharge curves for KFL - type Cell at Different Rates and +20° C



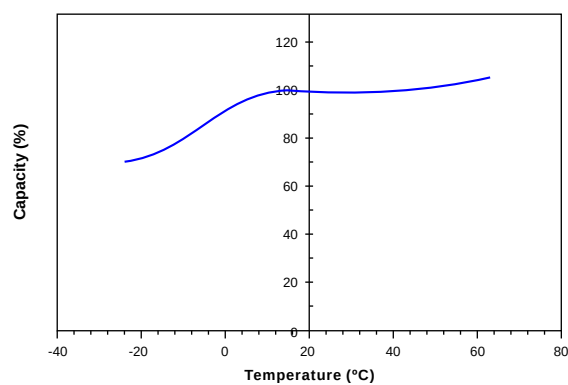
Typical Discharge curves for KFM - type Cell at Different Rates and +20° C



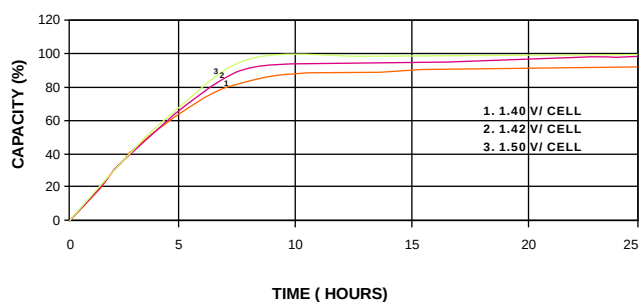
Discharge curves for KFX - type Cell at different rates and +20° C



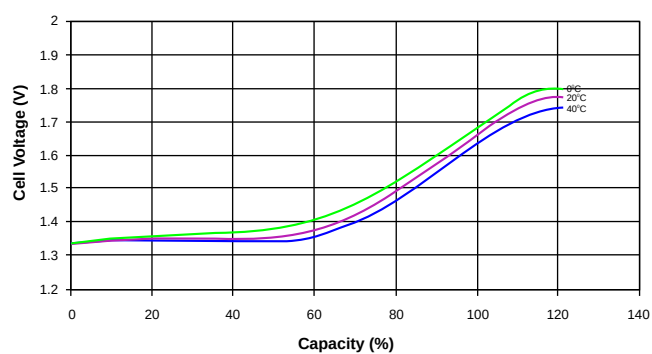
Performance of NCFP cells at different temperatures at 0.2C rate



Typical charge Characteristic Of NCFP cells at Different Constant Voltages at +20°C (Current limit 0.2 C<sub>0</sub>)



Typical charge curves for NCFP cells at constant current at 0.2C rate and different temperature





STQC Directorate,  
Department of Electronics,  
Government of India



MGMT. SYS.  
RVA C 286

**ISO 9001-2000 Certified**



IEC - 60623

**EMS ISO 14001 - 1996 Certified**

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