

## CHEF Mapper™ and CHEF Mapper XA System Specifications

### Algorithm (on CHEF Mapper XA system):

Embedded algorithm for automated optimization of common electrophoresis conditions. User enters smallest and largest size DNA expected in the sample (range 1 kb to 6 mb). Smallest fragment is placed 9 cm from the well. Algorithm assumes 1% Pulsed-Field Certified Agarose, 0.5 x TBE buffer, 14 °C for DNAs less than 2.5 mb. For DNAs over 2.5 mb, 0.8 % Pulsed-Field Certified Agarose, 1.0 x TAE, and 14 °C are assumed.

Interactive computer algorithm for full optimization of electrophoresis conditions, requires PC 80286 or 80386 or compatible, with Microsoft Windows™ software. User can vary buffer concentration and type, agarose concentration and type, and buffer temperature, as inputs. Bar code reader and interactive program disk included with CHEF Mapper XA system.

### Power Module:

|                             |   |
|-----------------------------|---|
| Dimensions                  | 34.5 (depth) x 55.9 (width) x 30.5 (height) cm  |
| Construction                | Aluminum chassis  |
| Weight                      | 16 kg   |
| Power supply                | 350 V maximum, to allow maximum gradient of 9 V/cm, continuously adjustable, built in |
| Maximum current             | 0.5 amperes   |
| Allowable voltage gradients | 0, and 0.6–9 V/cm, in 0.1 V/cm increments   |
| Battery back up             | All parameters in memory  |
| Delayed start               | Up to 72 hours  |
| Electrode potentials        | Dynamically regulated (feedback adjustment) ± 0.5%                                    |
| Program storage             | 20 average protocols  |
| Data entry                  | Keyboard, bar code reader (XA version), or serial RS-232                              |
| Display                     | Fluorescent, 2 lines x 40 characters per line   |

### Switching Functions:

|                             |   |
|-----------------------------|---|
| Switching range             | 50 msec to 18 hr  |
| Switch angle variable       | 0-360 degrees (all electronic switching) in 0.5° increments                             |
| Multistate vector switching | Up to 15 vectors per pulse cycle, each definable by angle, voltage, and switch time     |
| Switch time ramps           | Linear, concave, or convex using hyperbolic function                                    |
| Interrupt pulses            | Defined by voltage, frequency, angle, and switch time                                   |
| Field inversion (FIGE)      | Available with asymmetric forward, reverse voltages                                     |
| Maximum program blocks      | 8, with automatic execution   |
| Maximum run time            | 999 hours per block   |
| Fuses                       | 3 Amp Slo-Blow; two each for AC line input<br>0.5 Amp Fast Blow for high voltage output |

### Chamber:

|                        |   |
|------------------------|---|
| Dimensions             | 11 x 43 x 44 cm, horizontal format                  |
| Construction           | Acrylic   |
| Lid                    | Safety interlocked                                  |
| Weight                 | 8.5 kg  |
| Electrodes             | 24 platinum (0.02 inch)                             |
| Temperature monitoring | Via precision temperature probe mounted through lid |

### Accessories included:

|                                 |   |
|---------------------------------|---|
| Variable speed oscillating pump | 120 V, ground isolated; flow rate 1 liter/min, typical                  |
| Bar code reader                 | Hewlett Packard HBCR-8100 or equivalent                                 |
| Casting stand                   | 14 cm x 12.7 cm   |
| Comb                            | 10 well comb and comb holder  |
| Temperature probe               | Digital readout from power module, 4 °C to 50 °C, ±0.5 °C maximum error |
| Tygon tubing                    | 365 cm  |
| Sample plug mold                | 10 slot   |
| Yeast DNA Standard              | <i>S. cerevisiae</i> YNN295   |
| Chromosomal Grade Agarose       | 5 grams   |
| Leveling bubble                 |   |
| Manual                          |   |

### Model 1000 Mini Chiller

|                     |                                      |
|---------------------|--------------------------------------|
| Weight              | 14 kg                                |
| Construction        | Aluminum                             |
| Dimensions          | 42 cm long x 23 cm wide x 24 cm high |
| Cooling capacity    | 75 watts of input power at 14 °C     |
| Operating range     | 5 °C - 25 °C                         |
| Fuse                | 3 Amp Slo-Blow                       |
| Total system weight | 40 kg                                |

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