

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 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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