Invitrogen™
life technologies

E-Gel®*96*–Automated agarose gel electrophoresis as easy as Plug & Play

The E-Gel®*96* system is:

- **Ultra-fast**—Analyze 96 samples on one gel in just 12 minutes

- **Efficient**—Run multiple gels simultaneously, over 20,000 samples per day

- **Convenient**—Compatible with 8-, 12-, and 96-tip robotic loading systems

E-Gel®*96* — A breakthrough in high-throughput DNA electrophoresis

E-Gel® *96* gels are pre-cast, robot-compatible agarose gels that stream-line high-throughput DNA electrophoresis. Each E-Gel® *96* gel is ready-to-use in a self-contained, disposable, UV-transparent cassette. The unique 96-well staggered format is compatible with multi-channel pipettors and 8-, 12-, and 96-tip robotic loading devices, to provide optimum perform-ance in high-throughput applications. With just 12-minute run times and automated load-ing, the E-Gel® *96* system allows you to run over 20,000 samples a day, significantly increasing the throughput of your DNA screening assignments.

High-speed electrophoresis

The E-Gel® *96* system[61] makes high-throughput DNA elec-trophoresis faster than ever before. Each E-Gel® *96* gel comes ready-to-run with agarose, electrodes, and ethidium bromide all packaged inside a UV-transparent cassette. There are no gels to pour, buffers to prepare, or staining and destaining

procedures to follow. Just place the E-Gel® *96* cassette into a specially designed system of E-Gel® *96* bases, load your sam-ples, and run. In just 12 minutes, you'll get results (Figure 1). By running over twenty E-Gel® *96* gels simultaneously, you'll significantly increase the speed of your analysis.

Figure 1 – Using the E-Gel®*96* system is as easy as Plug & Play
Simply open the E-Gel® *96* gel pouch (1), place the pre-cast E-Gel® *96* gel on an E-Gel® *96* base (2), load your samples (3), and run (4). In just 12 minutes, you get results – 96 samples at once (5).

1 Open the gel pouch.

2 Place gel on base.

3 Load samples.

4 Press start button.

5 See results in 12 minutes.

Toll Free: 800 955 6288

Patented, high-throughput format saves you time

E-Gel® 96 gels save you hours of time by offering a fast, simple, and technologically advanced approach to agarose electrophoresis. Each E-Gel® 96 cassette contains 96 sample lanes and 8 marker lanes in a patented, staggered-well format. During electrophoresis, samples migrate between the wells of the row below (Figure 2). For example, the bands of lane B11 migrate between wells C11 and C12. This configuration provides a 1.6 cm run length, allowing resolution between 100 bp and 10 kb. The highly precise, staggered-well format is compatible with fully automated, robotic liquid handling systems that use 8-, 12-, or 96-tip loaders. The tips of the loader align exactly above the slopes of the wells. Samples are released and drawn into the wells by capillary force (magnified in Figure 2). Automated loading time ranges from one to five minutes per E-Gel® 96 cassette.

In addition to the patented, staggered-well format, E-Gel® 96 gels eliminate time-consuming preparation steps:

• No liquid buffer is required
• Electrodes are already embedded in the agarose matrix to supply the electric current (Figure 2)
• Ethidium bromide is included in the cassette for staining DNA and instantly visualizing the bands using a UV transilluminator

With a running time of just 12 minutes, the overall capacity of electrophoresis using the E-Gel® 96 system can exceed 20,000 samples per day—making the E-Gel® 96 system the fastest solution for high-throughput DNA screening applications.

Figure 2 — The E-Gel® 96 staggered-well cassette

Wells are spaced 9 mm on centers for robotic loading

Samples are drawn in by capillary force

Cross-hairs used to reconfigure, analyze, and document results (see E-Gel® 96 Editor software)

Copper electrode (-)

Samples migrate between wells in 1.6 cm run length

Agarose gel matrix contains ethidium bromide

Copper electrode (+)

EAN13 barcode

Precise sample identification

E-Gel® *96* cassettes have clearly marked wells and lanes to aid in tracking your samples. Fluorescent-labeled lane numbers instantly transfer to the image during photo documentation when using a UV transilluminator, eliminating errors in sample identification and ensuring that data is accurately documented.

In addition, each cassette is individually labeled with an EAN13 barcode (Figure 3), which is recognized by most commercially available robotic barcode readers (Figure 4). With E-Gel® *96* gels, keeping track of your high-throughput DNA analysis has never been so precise and effortless.

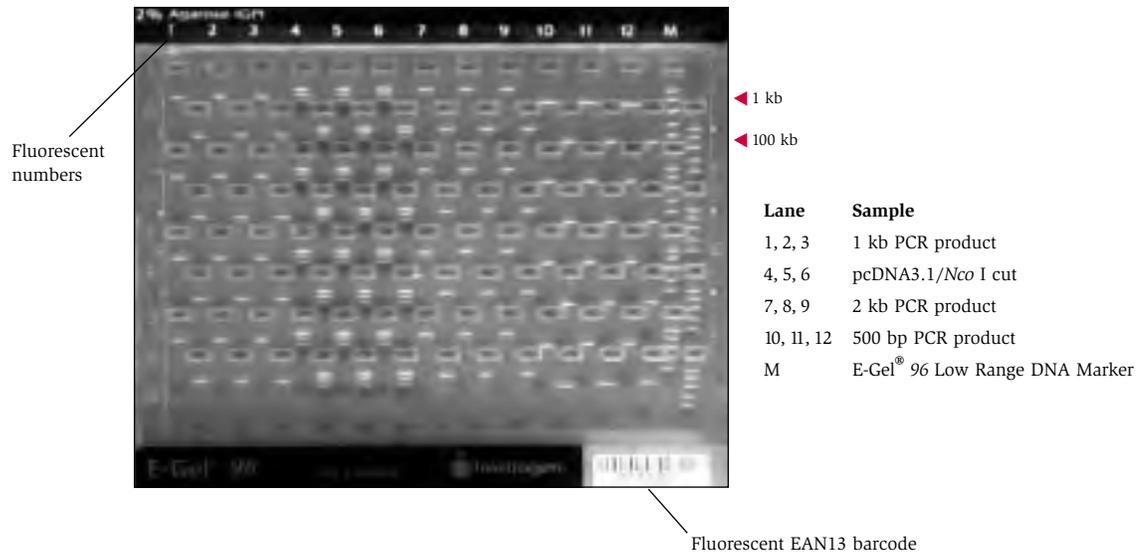**Figure 3 – Efficient labeling system offers precise sample identification**

Fluorescent numbers

◄ 1 kb

◄ 100 kb

Lane	Sample
1, 2, 3	1 kb PCR product
4, 5, 6	pcDNA3.1/*Nco* I cut
7, 8, 9	2 kb PCR product
10, 11, 12	500 bp PCR product
M	E-Gel® *96* Low Range DNA Marker

Fluorescent EAN13 barcode

Figure 4 – Robotic barcode recognition

Full-scale options

The E-Gel® *96* system is ideal for high-throughput analysis of DNA when fast results are crucial. E-Gel® *96* applications include analysis of multiple PCR products, restriction digests, plasmid preparations, RT-PCR products, library screenings, DNA for array production, SNPs, and more. To meet your electrophoresis needs, E-Gel® *96* gels are available in multi-packs containing eight 1% or 2% individually packaged agarose gels. E-Gel® *96* cassette specifications are featured in Table 1.

Table 1 — E-Gel® *96* **gel and cassette specifications**

| Feature	Specification
E-Gel® *96* **1% agarose gels**	**resolve 1 kb to 10 kb DNA fragments**
E-Gel® *96* **2% agarose gels**	**resolve 100 bp to 2 kb DNA fragments**
Cassette size	13.5 cm x 10.8 cm x 0.67 cm
Number of rows, columns	8, 13
Number of sample wells	96
Number of marker wells	8
Maximum sample volume	25 µl
Run length	1.6 cm
Run time	12 minutes
UV transparency	> 90%
Shelf-life	6 months
Storage conditions	Room temperature

Quick and easy band identification

The E-Gel® *96* Low Range Marker and the E-Gel® *96* High Range Marker are designed for estimating DNA band sizes on E-Gel® *96* gels (Table 2). Each marker is supplied pre-mixed in sample loading buffer, eliminating marker preparation steps. Clear separation and equal intensity bands simplify sample analysis (Figure 5).

Table 2 — E-Gel® *96* **DNA Markers**

DNA Marker	Band Sizes (bp)	E-Gel® *96* gel %
E-Gel® *96* Low Range Marker	100, 200, 400, 800, 2,000	2%
E-Gel® *96* High Range Marker	400, 800, 2,000 4,000, 10,000	1%

Figure 5 — E-Gel® *96* **DNA Markers**

E-Gel® *96* Low Range DNA Marker

100 ng/10 µl
2% E-Gel® *96* gel

E-Gel® *96* High Range DNA Marker

100 ng/10 µl
1% E-Gel® *96* gel
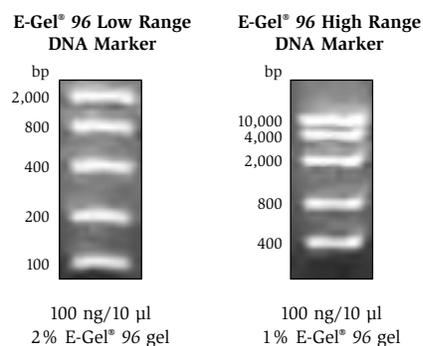
Plug & Play electrophoresis

E-Gel® *96* gels use a specially designed, space-saving system of mother and daughter bases—each a combined gel base and power supply all in one. Each base has a small bench-top footprint, measuring only 5.5 x 6 inches per base (Figure 6). Plug the power cord from the mother base directly into any standard electrical outlet. Connect multiple daughter bases to the mother base to create a multi-unit system (Figure 7). Over twenty gels can be run at once—that's 1,920 samples in just 12 minutes. Each mother and daughter base is pre-programmed for a 12-minute run time, but can be set for 1 to 99 minutes to meet your specific needs. For added convenience, each base runs independently and shuts off automatically, using its own built-in timer, alarm, and lighted display. Even if you stop one daughter base, the other bases continue to run. You'll never overrun a gel. Electrophoresis setup and control is as easy as Plug & Play.

Figure 6 – The E-Gel® *96* mother and daughter base combination

to electrical outlet

E-Gel® *96* gel

E-Gel® *96* mother base

E-Gel® *96* daughter bases
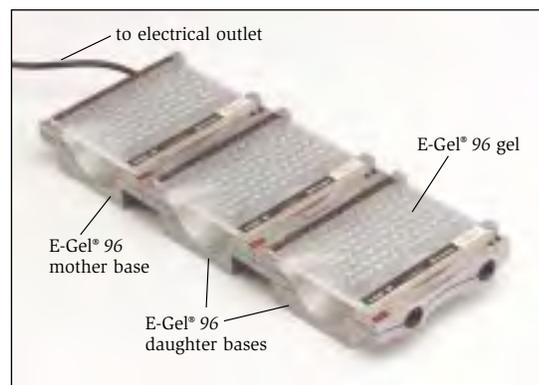
E-Gel® *96* mother and daughter bases each measure 14.6 cm x 15.0 cm x 5.3 cm

**Figure 7 – Over twenty E-Gel® *96* gels can be run at once**

Plays well with robots

The SBS (Society for Biomolecular Screening) standard 96-well plate format of the E-Gel® *96* bases fits on most robotic platforms—so you can load and run E-Gel® *96* gels directly on your robot. The handy E-Gel® *96* holder (Figure 8) keeps the E-Gel® *96* cassette stable during robotic loading of multiple gels while the mother and daughter bases are in use offline. Uniquely designed with a spring-loaded mechanism, the E-Gel® *96* holder ensures that each E-Gel® *96* cassette stays securely in place when the robotic arm moves (Figure 9). This allows reproducible placement and loading from one gel to the next—without adjusting your robot's loading software.

Figure 8 – The E-Gel® *96* holder

E-Gel® *96* gel
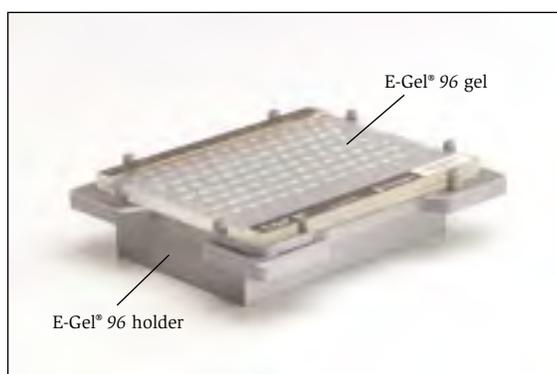
E-Gel® *96* holder

E-Gel® *96* holders measure 15.3 cm x 12.8 cm x 4.3 cm

Figure 9 – E-Gel® *96* holders on a liquid handling robot

Software for streamlined analysis

The E-Gel® *96* Editor is user-friendly, Windows®-compatible software that quickly arranges and displays your E-Gel® *96* results. This software takes the digital image from your E-Gel® *96* gel and reconfigures the staggered lanes into a side-by-side format for easy comparison, analysis, and documentation. Just open up your image (.tif, .jpg, or .bmp) in the E-Gel® *96* Editor program, align the lanes, and arrange (Figure 10). Save the reconfigured image, or copy and paste selected lanes into other applications for further analysis.

Figure 10 – Analyze E-Gel® *96* data using the E-Gel® *96* Editor software

Lanes from the E-Gel® *96* gel image are aligned using the E-Gel® *96* Editor software.

Reconfigured E-Gel® *96* gel data is easily analyzed.

Performance guaranteed

To make sure you get consistent results every time, E-Gel® *96* gels are manufactured with high-grade agarose and quality-tested reagents. Each lot of E-Gel® *96* gels is thoroughly tested to ensure accurate results. DNA samples containing fragments of various sizes are electrophoresed on each lot of E-Gel® *96* gels, and the bands are analyzed for clarity, resolution, and uniformity. You're guaranteed accurate performance with every gel.

Get plugged into high-throughput electrophoresis today!

Turn your routine agarose gel electrophoresis into an automated, high-throughput operation. Contact Invitrogen to order the E-Gel® *96* High-Throughput Agarose Electrophoresis System today.

Product	Quantity	Cat. no.
E-Gel® *96* 1% agarose gels	8 gels	G7008-01
E-Gel® *96* 2% agarose gels	8 gels	G7008-02
E-Gel® *96* mother base	1 base	G7100-01
E-Gel® *96* daughter base	1 base	G7200-01
E-Gel® *96* holder	2 holders	G7300-01
E-Gel® *96* Editor software and manual	1 copy	*Free
E-Gel® *96* Low Range DNA Marker	100 applications	12369-013
E-Gel® *96* High Range DNA Marker	100 applications	12352-019

[61]Products mentioned above are subject to the Limited Use Label License indicated by the superscript number. Please refer to the Invitrogen web site or catalog for the Limited Use Label License corresponding to the number indicated.

*The E-Gel® *96* Editor software is available free of charge to customers who purchase E-Gel® *96* gels and related equipment. After purchasing the E-Gel® *96* system, you may download the software from the Invitrogen web site at **www.invitrogen.com/egels**.

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