

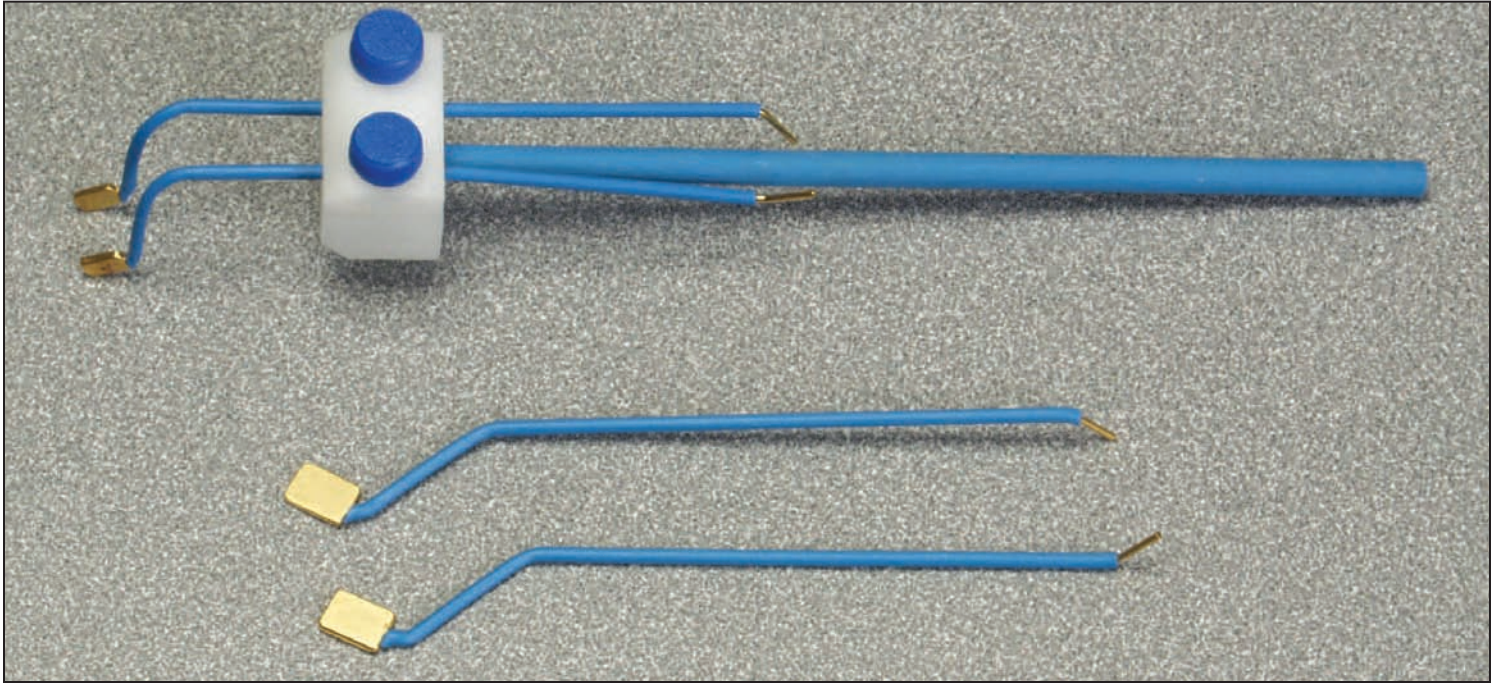
Genepaddles™

USER'S MANUAL

BTX®

HARVARD APPARATUS

The Electroporation Experts



INTRODUCTION

The BTX Genepaddles™ are paddle style reusable electrodes suitable for a variety of applications. Genepaddles™ come in two models, each consisting of a pair of electrodes. Model 542 Genepaddles™ feature rectangular 3 x 5 mm paddles while model 543 features rectangular 5 x 7 mm paddles. Models vary to suit the size of the target electroporation area. These electrodes are connected to cables (45-0216) which interface with the BTX electroporator. Genepaddles™ may be positioned parallel at a predetermined gap using the genepaddle holder. Genepaddles™ may be cleaned with a mild detergent and sterilized with ethanol. Properly maintained Genepaddles™ have a life span of approximately 200+ pulses and are compatible with the ECM® 830, 630 and 2001.

IMPORTANT: Read all Instructions, Warnings and Precautions prior to use.

FOR RESEARCH PURPOSES ONLY

Order No.	Model	Description
45-0169		Genepaddle™ Kit, 3 x 5 mm, including holder and cables
45-0170		Genepaddle™ Kit, 5 x 7 mm, including holder and cables
45-0122	542	3 x 5 mm Genepaddles™
45-0123	543	5 x 7 mm Genepaddles™
45-0203	515	Genetrode/Genepaddle™ Holder

GENERAL INFORMATION

Warranty

BTX/Harvard Apparatus warranties this BTX Genepaddles™ for a period of 90 days from date of purchase. At its option, BTX/Harvard Apparatus will repair or replace the item if it is found to be defective as to workmanship or material. This warranty does not extend to damage resulting from misuse, neglect, or abuse, normal wear and tear, or accident. This warranty extends only to the original customer purchase.

IN NO EVENT SHALL HARVARD APPARATUS BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some states do not allow exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, OR OF ANY OTHER NATURE.**

Some states do not allow this limitation on an implied warranty, so the above limitation may not apply to you. If a defect arises within the 90 day warranty period, promptly contact: **BTX/Harvard Apparatus, 84 October Hill Road, Holliston, Massachusetts 01746-1388** using our toll free number **1-800-272-2775 (Outside the U.S. call 1-508-893-8999)**. Goods will not be accepted for return unless an RMA (Return Materials Authorization) number has been issued by our customer service department. The customer is responsible for shipping charges. Please allow a reasonable period of time for completion of repairs or replacement and return. If the unit is replaced, the replacement unit is covered only for the remainder of the original warranty period dating from the purchase of the original device. This warranty gives you specific rights, and you may also have other rights which vary from state to state.

Note: BTX electrodes are not recommended for use with power supplies or cables from other manufacturers. Such use is completely at the customer's own risk as it may result in damage, create unsafe conditions and will immediately void the 90 day warranty.

IMPORTANT: Read all Instructions, Warnings and Precautions prior to use.

Technical & Customer Service

BTX® is the ultimate resource for technical information on the use of high voltage bacterial transformation and general electroporation of molecules and drugs into cells. We constantly track and monitor scientific publications in this area. Our Technical Service group extracts and enters pertinent information, such as results and parameters from these papers into a Protocol database. This database is available via the BTX website. Please visit www.btxonline.com. For technical assistance, additional information or an inquiry/request for repair service, contact BTX/Harvard Apparatus Technical Support/Customer Service Group at:

BTX®

A Division of Harvard Apparatus

84 October Hill Road

Holliston, MA 01746-1388 U.S.A.

Toll Free: 1-800-272-2775 (U.S. only)

Phone: 1-508-893-8999

Fax: 1-508-429-5732

E-mail: techsupport.btx@harvardapparatus.com

Internet: www.btxonline.com (click on customer service)

If outside the United States and Canada: call **1-508-893-8999** or contact your nearest BTX Distributor. A complete list of distributors is on our website.

GENERAL SAFETY INFORMATION

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazard, use this product only as specified. Only qualified BTX personnel should perform service procedures.

To Prevent Hazard or Injury:

ARCING CAN OCCUR AT HIGH VOLTAGES

An unfavorable combination of parameters such as high voltage settings and a small sample volume with a highly conductive medium might lead to flashover between the electrodes (ARC) and/or explosive evaporation of the medium. Reduce voltage or pulse length to avoid repeating this condition.

DO NOT OPERATE WITH SUSPECTED FAILURES

If you suspect there is damage to the product, have it inspected by qualified BTX service personnel.

DO NOT CONTACT ELECTRODES

To avoid fire or shock hazard, observe all ratings and markings on the product or in this manual before using the device.

AVOID EXPOSURE TO CONTACT

Do not insert fingers or try to remove electrode or sample during pulsing sequence.

WEAR PROPER EYE PROTECTION DURING ELECTROPORATION

DO NOT OPERATE IN AN EXPLOSIVE ENVIRONMENT

DO NOT OPERATE IN WET/DAMP CONDITIONS

Safety Terms and Symbols:

Terms that appear in this manual:



WARNING. Warning statements identify conditions or practices that could result in injury or loss of life.



CAUTION. Caution statements identify conditions or practices that could result in damage to these products or other property.

Symbols that may appear on the products:



Danger
High
Voltage



Attention
Refer to
Manual



Protective
(Earth)
Terminal



Functional
Ground
Terminal

OPERATION: GETTING STARTED

WARNING HIGH VOLTAGE

Make sure the BTX electroporator is switched off before continuing.

- Using the Model 515 Genetrode/Genepaddle holder, loosen the two plastic screws and separate the top half of the positioning plate from the holder. Place the pair in predetermined slots based on the necessary gap distance. The electrode paddles should extend from the holder in the opposite direction of the holder handle. Secure the electrodes by reassembling the holder and tightening the two screws.
 - Connect the red and black terminal ends of the Micrograbber Cable (45-0216) to the gold plated electrode leads of the Genepaddles™. Verify a firm connection between the cable and the electrodes.
 - Push the banana plugs of the cable into the voltage output of the BTX electroporator.
- Warning:** Make sure the electroporator is turned off prior to connecting any cables to it.
- Prepare tissue and sample for electroporation.
 - Following instructions for the BTX electroporator, set the appropriate parameters on the generator.
 - Place the Genepaddles™ on the sample using a micromanipulator or manually position the Genepaddles™.
 - Deliver the electroporation pulse(s) to the sample.
 - Remove the electrodes carefully and prepare for the next experiment. Clean the Genetrode Holder and the gold plated electrode base of the Genepaddles™ with a soft cloth or tissue. If necessary, moisten the cloth or tissue with a dilute detergent solution. Clean the Genepaddle tips between experiments by washing with a mild detergent using a cloth or soft bristled brush. Alternatively, the Genepaddles™ tips can be placed into an ultrasonic water bath and cleaned with mild detergent under sonication.

APPENDIX A: SPECIFICATIONS

Genepaddles™ Electrical & Technical Specifications

Standard Capabilities*:

Voltage Range	0 to 200 VDC
Pulse Length/Time	
Constants Range	1 µsec to 99 msec
Operating Temperature	5° to 40°C
Intended Use	Indoor use only
Relative Humidity	20 to 80%
Maximum Altitude	2,000 m (6,562 ft)
Pollution Degree	II
Insulation Category	CAT I

Physical Characteristics:

Model	542	543
Paddle Dimensions	3 x 5 mm	5 x 7 mm
Paddle Configuration	Rectangular	Rectangular
Gold Plating Thickness	0.04 mm	0.04 mm
Paddle Thickness	1 mm	1 mm
Electrode Gap	1 to 10 mm	1 to 10 mm

Compatibility:

Generators	ECM® 630, 830 and 2001
Monitoring	The Enhancer 3000® Monitoring System recommended

**Depending on buffer composition and generator capability*

APPENDIX B: REPLACEMENT PARTS

Order No.	Model	Description
45-0169	542KIT	Genepaddle Kit, 3 x 5 mm, including holder and cables
45-0170	543KIT	Genepaddle Kit, 5 x 7 mm, including holder and cables
45-0122	542	3 x 5 mm Genepaddles™
45-0123	543	5 x 7 mm Genepaddles™
45-0203	515	Genetrode/Genepaddle™ Holder
45-0059	ENHANCER3000SC	The Enhancer 3000® Monitoring System
45-0216		Micrograbber Cables

APPENDIX C: TROUBLESHOOTING

Please contact BTX Technical Service at any of the numbers listed below in the event of any failure.

BTX®

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84 October Hill Road

Holliston, MA 01746-1388 U.S.A.

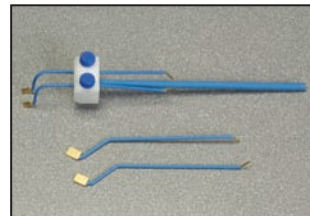
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45-0122 45-0203 and 45-0123

CAUTION
FOR RESEARCH USE ONLY
NOT FOR CLINICAL
USE ON PATIENTS

WEEE/RoHS Compliance Statement

EU Directives WEEE and RoHS

To Our Valued Customers:

We are committed to being a good corporate citizen. As part of that commitment, we strive to maintain an environmentally conscious manufacturing operation.

The European Union (EU) has enacted two Directives, the first on product recycling (Waste Electrical and Electronic Equipment, WEEE) and the second limiting the use of certain substances (Restriction on the use of Hazardous Substances, RoHS). Over time, these Directives will be implemented in the national laws of each EU Member State.

Once the final national regulations have been put into place, recycling will be offered for our products which are within the scope of the WEEE Directive. Products falling under the scope of the WEEE Directive available for sale after August 13, 2005 will be identified with a "wheelie bin" symbol.

Two Categories of products covered by the WEEE Directive are currently exempt from the RoHS Directive – Category 8, medical devices (with the exception of implanted or infected products) and Category 9, monitoring and control instruments. Most of our products fall into either Category 8 or 9 and are currently exempt from the RoHS Directive. We will continue to monitor the application of the RoHS Directive to its products and will comply with any changes as they apply.



- **Do Not Dispose Product with Municipal Waste**
- **Special Collection/Disposal Required**

BTX[®]

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Publication 5502-001-REV-CS