



Roller-Blot

HB-3D Hybridiser
Operator's Manual

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Declaration of Conformity

Techne's Roller-Blot, Hybridiser HB-3D complies with the following European Standard:
EN 61326:1998 Electrical equipment for measurement, control and laboratory use.
EMC requirements.

It has also been designed to comply with the following European Standards:
EN 61010-1:1993 Safety requirements for electrical equipment for measurement, control and
laboratory use.

EN 61010-2-010:1995 Particular requirements for laboratory equipment for the heating of
materials.

I have made all reasonable enquiries regarding the unit stated and its conformance to the
following EU directives:

Low Voltage directive, 73/23/EEC and amendment 93/68/EEC, and
EMC Directive 89/336/EEC and amendments 91/263/EEC 92/31/EEC and 93/68/EEC.

To the best of my knowledge and belief these units conform to these directives.

Techne's Roller-Blot, Hybridiser HB-3D also complies with CFR 47 Part 15B for a class A
digital device.

CFR 47:1997 Code of Federal Regulations: Part 15 Subpart B-Radio Frequency Devices -
Unintentional Radiators



This Declaration is controlled under an ISO 9001:1994 system certificated by BSI Quality
Assurance, certificate number FM13585.

Signature *BCCoombes,*

Name B C Coombes

Position Quality Manager

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Introduction

Please read all the information in this booklet before using the unit.

Warning

HIGH TEMPERATURES ARE DANGEROUS: they can cause serious burns to operators and ignite combustible material.

Techne have taken great care in the design of these units to protect operators from hazards, but users should pay attention to the following points:

- USE CARE AND WEAR PROTECTIVE GLOVES TO PROTECT HANDS;
- DO NOT put hot objects on or near combustible objects;
- DO NOT operate the unit close to inflammable liquids or gases;
- DO NOT place any liquid directly in your unit;
- At all times USE COMMON SENSE.

Operator Safety

All users of Techne equipment must have available the relevant literature needed to ensure their safety.

It is important that only suitably trained personnel operate this equipment, in accordance with the instructions contained in this manual and with general safety standards and procedures. If the equipment is used in a manner not specified by Techne the protection provided by the equipment to the user may be impaired.

All Techne units have been designed to conform to international safety requirements and are fitted with an overtemperature cutout. The cutout is preset to protect the unit.

If a safety problem should be encountered, switch off at the mains socket and remove the plug from the supply.

Installation

1. All Techne units are supplied with a power cable. This may be integral or plug-in.
2. Before connecting the mains supply, check the voltage against the rating plate. Connect the mains cable to a suitable plug according to the table below. **Note that the unit must be earthed to ensure proper electrical safety.**

Connections	220/240V	110/120V
Live	Brown	Black
Neutral	Blue	White
Earth	Green/yellow	Green

The fused plug supplied with the mains lead for use in the UK is fitted with the following value fuse to protect the cable:

230V UK 5 AMP

The fuse in the unit protects the unit and the operator.

Note that units marked 230V on the rating plate work at 220V; units marked 120V work at 110V. In both cases, however, the heating rate will degrade by approximately 8%. The rating plate is on the rear of the unit.

3. Plug the mains cable into the socket on the rear of the unit.
4. Place the unit on a suitable bench or flat workspace, or in a fume cupboard if required, ensuring that the air inlet vents on the underside are free from obstruction.
5. Symbols on or near the power switch of the unit have the following meanings:

I : mains switch On
O : mains switch Off

After use

When you have finished heating samples, remember that parts of the unit – the tubes, blocks and associated accessories – may be very hot. Take the precautions listed earlier.

Guarantee

The unit is guaranteed against any defect in material or workmanship for the period specified on the enclosed guarantee card. This period is from the date of purchase, and within this period all defective parts will be replaced free of charge provided that the defect is not the result of misuse, accident or negligence. Servicing under this guarantee should be obtained from the supplier.

Notwithstanding the description and specification(s) of the units contained in the Operator's Manual, Techne (Cambridge) Limited hereby reserves the right to make such changes as it sees fit to the units or to any component of the units.

This Manual has been prepared solely for the convenience of Techne (Cambridge) Limited customers and nothing in this Instruction Book shall be taken as a warranty, condition or representation concerning the description, merchantability, fitness for purpose or otherwise of the units or components.

User maintenance

NOTE THAT THIS EQUIPMENT SHOULD ONLY BE DISMANTLED BY PROPERLY TRAINED PERSONNEL. REMOVING THE INSIDE FRONT OR REAR PANELS EXPOSES POTENTIALLY LETHAL MAINS VOLTAGES. THERE ARE NO USER MAINTAINABLE PARTS WITHIN THE EQUIPMENT.

In the unlikely event that you experience any problems with your unit which cannot easily be remedied, you should contact your supplier and return the unit if necessary. Please include any details of the fault observed and remember to return the unit in its original packing. Techne accept no responsibility for damage to units which are not properly packed for shipping: if in doubt, contact your supplier. See the Decontamination Certificate supplied with your unit.

1. Cleaning

Before cleaning your unit ALWAYS disconnect from the power supply and allow to cool below 50° C.

Your unit can be cleaned by wiping with a damp soapy cloth. Care should be exercised to prevent water from running inside the unit. Do not use abrasive cleaners.

2. Overtemperature cutout

The overtemperature cutout may be a sensitive mechanical device and mechanical shock can cause it to trip.

- In the event of no heater power, check the mains plug and lead, then reset the cutout control.
- Repeated operation of the cutout indicates a serious fault: you may need to return the unit to your supplier for repair.

3. Fuses

Your unit is protected by one or two fuses. These should only be changed by suitably qualified personnel.

If the fuses blow persistently, a serious fault is indicated and you may need to return the unit to your supplier for repair.

Contact Information

For technical, sales or servicing information, contact your local Techne dealer or,

Techne (Cambridge) Limited,
Duxford, CAMBRIDGE, CB2 4PZ, United Kingdom.

Telephone: 01223 832401

Telefax: 01223 836838

Service: 01223 836950

(24 hour answer machine)

E-Mail: sales@techneuk.attmail.com

Web site: <http://www.techneuk.co.uk/>

or,

Techne Incorporated, University Park Plaza,
743 Alexander Road, Princeton, New Jersey,
08540-6328, USA.

Telephone: (609) 452-9275

Toll free: 1-800-225-9243

Telefax: (609) 987-8177

E-Mail: techneusa@worldnet.att.net

Introduction

Veillez lire attentivement toutes les instructions de ce document avant d'utiliser l'appareil.

Avertissement

DANGER DE TEMPERATURES ELEVEES : les opérateurs peuvent subir de graves brûlures et les matériaux combustibles risquent de prendre feu.

Techne a apporté un soin tout particulier à la conception de ces appareils de façon à assurer une protection maximale des opérateurs, mais il est recommandé aux utilisateurs de porter une attention spéciale aux points suivants :

- PROCÉDER AVEC SOIN ET PORTER DES GANTS POUR SE PROTÉGER LES MAINS.
- NE PAS poser d'objets chauds sur ou près de matériaux combustibles.
- NE PAS utiliser l'appareil à proximité de liquides ou de gaz inflammables.
- NE PAS verser de liquide directement dans l'appareil.
- FAIRE TOUJOURS PREUVE DE BON SENS.

Sécurité de l'opérateur

Tous les utilisateurs de produits Techne doivent avoir pris connaissance des manuels et instructions nécessaires à la garantie de leur sécurité.

Important : cet appareil doit impérativement être manipulé par un personnel qualifié et utilisé selon les instructions données dans ce document, en accord avec les normes et procédures de sécurité générales. Dans le cas où cet appareil ne serait pas utilisé selon les consignes précisées par Techne, la protection pour l'utilisateur ne serait alors plus garantie.

Tous les appareils Techne sont conçus pour répondre aux normes de sécurité internationales et sont dotés d'un coupe-circuit en cas d'excès de température. Il est pré-réglée en usine pour assurer la protection de l'appareil.

Dans le cas d'un problème de sécurité, coupez l'alimentation électrique au niveau de la prise murale et enlevez la prise connectée à l'appareil.

Installation

1. Tous les appareils Techne sont livrés avec un câble d'alimentation qui peut être intégré à l'appareil ou à raccorder.
2. Avant de brancher l'appareil, vérifiez la tension requise indiquée sur la plaque d'identification. Raccordez le câble électrique à la prise appropriée en vous reportant au tableau ci-dessous. **Il est important que l'appareil soit relié à la terre pour assurer la protection électrique requise.**

Connexions	220/240 V	110/120 V
Phase	Marron	Noir
Neutre	Blue	Blanc
Terre	Vert/juane	Vert

Le fusible à l'intérieur de l'appareil est destiné à assurer la protection de l'appareil et de l'opérateur.

Remarque : les appareils dont la plaque indique 230 V peuvent fonctionner sur 220 V, et ceux dont la plaque indique 120 V peuvent fonctionner sur 110 V. Dans les deux cas cependant, la capacité de chauffage diminuera d'environ 8 %. La plaque d'identification se trouve à l'arrière de l'appareil.

3. Raccordez le câble d'alimentation à la prise située à l'arrière de l'appareil.
4. Placez l'appareil sur un plan de travail ou surface plane, ou le cas échéant, dans une hotte d'aspiration, en s'assurant que les trous d'aération situés sous l'appareil ne sont pas obstrués.
5. Les symboles situés sur ou à côté de l'interrupteur de l'appareil ont la signification suivante :

I : arrêt

O : marche

Après utilisation

Lorsque vous avez fini de chauffer les échantillons, n'oubliez pas que certaines parties de l'appareil - les éprouvettes, leurs supports et autres accessoires - risquent d'être très chaudes. Il est donc recommandé de toujours prendre les précautions citées plus haut.

Garantie

L'appareil est garanti contre tout défaut ou vice de fabrication pour la durée figurant sur la carte de garantie, à compter de la date d'achat de l'appareil. Au cours de cette période, toutes les pièces défectueuses seront remplacées gratuitement, dans la mesure où la défaillance n'est pas due à une mauvaise utilisation, un accident ou une négligence. Toute réparation sous garantie sera effectuée par le fournisseur.

Malgré la description et les spécifications de l'appareil données dans le manuel de l'utilisateur, Techne (Cambridge) Limited se réserve le droit d'effectuer les changements nécessaires à l'appareil ou à tout élément qui entre dans sa composition.

Ce manuel a été exclusivement rédigé à l'attention des clients de Techne (Cambridge) Limited, et aucun élément de ce guide d'instructions ne peut être utilisé comme garantie, condition ou représentation concernant la description, commercialisation, adaptation aux conditions d'utilisation ou autre des appareils ou de leurs composants.

Entretien utilisateur

IMPORTANT : CET APPAREIL NE PEUT ETRE DEMONTE QUE PAR DU PERSONNEL QUALIFIE.

LORSQUE LES PANNEAUX AVANT ET ARRIERE SONT DEMONTES, L'OPERATEUR EST EXPOSE A DES TENSIONS QUI PEUVENT ETRE MORTELLES.

CET APPAREIL NE CONTIENT AUCUN ELEMENT QUI DEMANDE UN ENTRETIEN DE LA PART DE L'UTILISATEUR.

Dans le cas peu probable où votre appareil présente un défaut de fonctionnement auquel il est difficile de remédier, il est alors préférable de contacter votre fournisseur et, le cas échéant, de renvoyer le matériel. Veuillez inclure une description détaillée du problème constaté et retourner l'appareil dans son emballage d'origine. Techne ne sera pas tenu responsable des dommages subis par tout appareil dont l'emballage est inadéquat pour le transport. Pour plus de sûreté, contactez votre fournisseur. Voir le certificat de décontamination livré avec le produit.

1. Nettoyage

Avant de nettoyer l'appareil, assurez-vous TOUJOURS que le câble d'alimentation est déconnecté et laissez la température redescendre en dessous de 50 °C.

Utilisez un chiffon imprégné d'eau savonneuse pour nettoyer l'appareil. Veillez à ne pas introduire d'eau dans l'appareil. N'utilisez pas de produits abrasifs.

2. Coupe-circuit d'excès de température

Ce dispositif est un mécanisme très sensible et il peut se déclencher sous l'effet d'un choc mécanique.

- En l'absence de puissance de chauffe, vérifiez la prise et le câble d'alimentation puis réglez la commande du coupe-circuit.
- Si la sécurité se déclenche trop souvent, il s'agit d'un problème plus sérieux. Nous vous conseillons dans ce cas de prendre contact avec votre fournisseur pour réparation.

3. Fusibles

La protection de l'appareil est assurée par un ou deux fusibles dont le remplacement ne peut être effectué que par un personnel qualifié.

Si les fusibles sautent sans arrêt, il s'agit d'un problème sérieux. Nous vous conseillons dans ce cas de prendre contact avec votre fournisseur pour réparation.

Einleitung

Bitte lesen Sie diese Bedienungsanleitung komplett bevor Sie dieses Gerät benutzen.

Warnung

HOHE TEMPERATUREN SIND GEFÄHRLICH: sie können dem Bediener ernsthafte Verletzungen zufügen und brennbare Materialien können sich leicht entzünden.

Techne hat bei der Konstruktion dieses Gerätes sehr darauf geachtet, daß der Bediener vor Gefahren geschützt ist. Dennoch sollten Sie auf die folgenden Punkte achten:

- SEIEN SIE VORSICHTIG UND TRAGEN SIE SCHUTZHANDSCHUHE
- Legen Sie heiße Gegenstände NICHT auf oder in die Nähe von leicht brennbaren Materialien; vermeiden Sie Arbeiten in der Nähe von leicht entzündbaren Flüssigkeiten oder Gasen.
- Bringen sie KEINE Flüssigkeiten direkt in Ihr Gerät.
- Benutzen Sie immer den normalen Menschenverstand

Sicherheit des Anwenders

Alle Benutzer von Techne Geräten müssen Zugang zu der entsprechenden Literatur haben, um ihre Sicherheit zu gewähren. Es ist wichtig, daß diese Geräte nur von entsprechend geschultem Personal betrieben werden, das die in dieser Gebrauchsanweisung enthaltenen Maßnahmen und allgemeine Sicherheitsbestimmungen und -vorkehrungen beachtet. Wenn das Gerät anders eingesetzt wird als vom Hersteller empfohlen, kann dies die persönliche Sicherheit des Anwenders beeinträchtigen. Die Geräte von Techne entsprechen den internationalen Sicherheitsbestimmungen und sind mit einem automatischen Übertemperaturabschalter ausgestattet. Der Temperaturschutz voreingestellt um Schäden am Gerät zu vermeiden. Wenn ein Sicherheitsproblem auftreten sollte, muß das Gerät ausgeschaltet und vom Stromnetz getrennt werden.

Installation

1. Alle Techne Geräte werden mit einem Stromanschlußkabel geliefert. Dieses ist entweder fest mit dem Gerät verbunden oder zum Einstecken.
2. Vergleichen Sie, ob die Spannung Ihrer Stromversorgung mit den Angaben auf dem Typenschild des Geräte übereinstimmen. Verbinden Sie das Stromanschlußkabel mit einer geeigneten Stromversorgung gemäß der nächstehenden Tabelle. Achtung: Das Gerät muß geerdet sein, um die elektrische Sicherheit zu gewährleisten!

Verbindungen	220/240V	110/120V
Stromführend	Braun	Schwarz
Neutral	Blau	Weiß
Erde	Grün/Gelb	Grün

Geräte, die für 230 Volt ausgelegt sind, können auch bei 220 Volt arbeiten, Geräte für 120 Volt auch bei 110 Volt. In beiden Fällen verringert sich die Aufheizrate um ca. 8%. Das Typenschild befindet sich hinten am Gerät.

3. Stecken Sie das Stromkabel in die vorgesehene Buchse hinten am Gerät.
4. Stellen Sie das Gerät auf eine ebene Arbeitsfläche bzw. (falls erforderlich) unter einen Laborabzug. Beachten Sie, daß die Entlüftungsrippen an der Geräteunterseite immer frei zugänglich sind.
5. Die Symbole auf oder neben dem EIN/AUS-Schalter an der Geräterückseite bedeuten:

I	: An
O	: Aus

Nach dem Gebrauch

Vergessen Sie nicht, daß Teile des Gerätes (die Gefäße, die Blöcke und andere Zubehörteile) nach dem Erhitzen von Proben noch sehr heiß sein können. Bitte beachten Sie die oben genannten Vorsichtsmaßnahmen.

Garantie

Die Garantiedauer des Gerätes ist auf der beiliegenden Garantiekarte angegeben und schließt Fehler im Material oder der Verarbeitung ein. Die Garantiedauer beginnt am Tag des Einkaufs. Sämtliche defekte Teile werden innerhalb dieses Zeitraumes kostenlos ersetzt unter der Voraussetzung, daß dem Defekt keine unsachgemäße Handhabung, Fahrlässigkeit oder ein Unfall zugrundeliegt. Der unter diese Garantie fallende Service wird vom Lieferanten geleistet.

Ungeachtet der in dieser Gebrauchsanweisung enthaltenen Beschreibungen und Spezifikationen, behält sich Techne (Cambridge) Limited hiermit das Recht vor, Änderungen an den Geräten bzw. an einzelnen Geräteteilen durchzuführen.

Diese Gebrauchsanweisung wurde ausschließlich dazu erstellt, um Kunden die Handhabung der Techne-Geräte zu erleichtern. Nichts in dieser Gebrauchsanweisung darf als Garantie, Bedingung oder Voraussetzung verstanden werden, sei es die Beschreibung, Marktgängigkeit, Zweckdienlichkeit oder sonstiges bezüglich der Geräte oder deren Bestandteile.

Wartung durch den Bediener

BEACHTEN SIE, DASS DIESES GERÄT NUR VON TECHNISCHEN FACHKRÄFTEN GEÖFFNET UND DEMONTIERT WERDEN DARF.

DURCH ENTFERNEN DES GEHÄUSES ODER GEHÄUSETEILEN SIND BAUTEILE MIT LEBENGEFÄHRLICHEN SPANNUNGEN FREI ZUGÄNGLICH.

IM INNERN DES GERÄTES BEFINDEN SICH KEINE TEILE, DIE VOM ANWENDER GEWARTET WERDEN MÜSSEN.

Falls Ihr Gerät nicht ordnungsgemäß arbeitet, wenden Sie sich an Ihren Lieferanten oder senden Sie das Gerät wenn nötig zurück. Fügen Sie eine genaue Beschreibung des Defektes bei. Verpacken Sie das Gerät möglichst im Originalkarton. Bitte beachten Sie, daß Techne keine Haftung bei Transportschäden aufgrund unzureichender Verpackung übernehmen. Setzen Sie sich im Zweifelsfall mit Ihrem Lieferanten in Verbindung. Bitte beachten Sie die Entgiftungsbescheinigung, die Sie mit dem Gerät erhalten haben.

1. Reinigen

Bevor Sie Ihr Gerät reinigen, sollten Sie

- zuerst den Netzstecker ziehen
- das Gerät unter 50°C abkühlen lassen.

Ein feuchtes Tuch mit Seifenlösung reinigt Ihr Gerät am besten. Achten Sie darauf, daß kein Wasser in das Gerät gelangt. Verwenden Sie keine Scheuermittel.

2. Übertemperaturabschalter

- Der Übertemperaturschutz ist ein empfindliches mechanisches Teil. Schon eine Erschütterung kann diesen auslösen.
- Falls die Heizung nicht funktioniert, überprüfen Sie zuerst Netzstecker und Kabel. Setzen Sie dann den Übertemperaturabschalter wieder zurück, indem Sie den roten Knopf einmal bis zum Anschlag drücken.
- Wenn der Übertemperaturabschalter wiederholt auslöst, liegt ein größerer Defekt vor. Das Gerät muß zur Reparatur an Ihren Lieferanten eingeschickt werden.

3. Sicherungen

Die Stromzuleitung ist durch ein oder zwei Sicherungen geschützt. Diese sollten nur durch qualifiziertes Fachpersonal ausgetauscht werden. Wenn die Sicherung wiederholt durchbrennt, liegt ein größerer Defekt vor. Das Gerät muß zur Reparatur an Ihren Lieferanten eingeschickt werden.

Introducción

Le rogamos lea cuidadosamente la información contenida en este folleto antes de manipular el aparato.

Aviso

LAS TEMPERATURAS ELEVADAS SON PELIGROSAS: pueden causarle graves quemaduras y provocar fuego en materiales combustibles.

Techne ha puesto gran cuidado en el diseño de estos aparatos para proteger al usuario de cualquier peligro; aún así se deberá prestar atención a los siguientes puntos:

- EXTREME LAS PRECAUCIONES Y UTILICE GUANTES PARA PROTEGERSE LAS MANOS;
- NO coloque objetos calientes encima o cerca de objetos combustibles;
- NO maneje el aparato cerca de líquidos inflamables o gases;
- NO introduzca ningún líquido directamente en el aparato;
- UTILICE EL SENTIDO COMUN en todo momento.

Seguridad del usuario

Todos los usuarios de equipos Techne deben disponer de la información necesaria para asegurar su seguridad.

De acuerdo con las instrucciones contenidas en este manual y con las normas y procedimientos generales de seguridad, es muy importante que sólo personal debidamente capacitado opere estos aparatos. De no ser así, la protección que el equipo le proporciona al usuario puede verse reducida.

Todos los equipos Techne han sido diseñados para cumplir con los requisitos internacionales de seguridad y traen incorporados un sistema de desconexión en caso de sobretemperatura. El sistema de desconexión viene ya ajustado para evitar daños en el equipo. En caso de que surgiera un problema de seguridad, desconecte el equipo de la red.

Instalación

1. Todos los aparatos Techne se suministran con un cable de alimentación. Puede ser fijo o independiente del aparato.
2. Antes de conectarlo, compruebe que el voltaje corresponde al de la placa indicadora. Conecte el cable de alimentación a un enchufe adecuado según la tabla expuesta a continuación. El equipo debe estar conectado a tierra para garantizar la seguridad eléctrica.

<i>Conexiones</i>	220/240V	110/120V
Línea	Marrón	Negro
Neutro	Azul	Blanco
Tierra	Verde/amarillo	Verde

El fusible una vez instalado protege tanto al equipo como al usuario.

Asegúrese de que los equipos marcados 230V en la placa indicadora funcionan a 220V y de que los equipos marcados 120V funcionan a 110V. No obstante, en ambos casos la velocidad de calentamiento se verá reducida en un 8% aproximadamente. La placa indicadora está situada en la parte posterior del equipo.

3. Conecte el cable a la toma de tensión en la parte posterior del equipo.
4. Sitúe el aparato en un lugar apropiado tal como una superficie de trabajo plana, o si fuera necesario incluso en una campana con extractor de humos, asegurándose de que las entradas de aire en la parte inferior no queden obstruidas.
5. Los símbolos que se encuentran en o cerca del interruptor de alimentación tienen los siguientes significados:

I	: Interruptor principal encendido
O	: Interruptor principal apagado

Después de su uso

Cuando haya finalizado el calentamiento de muestras, recuerde que las piezas del equipo, tales como tubos, bloques y demás accesorios, pueden estar muy calientes. Tome las precauciones mencionadas anteriormente.

Garantía

Este aparato está garantizado contra cualquier defecto material o de fabricación durante el periodo especificado en la tarjeta de garantía adjunta. Este plazo inicia a partir de la fecha de compra, y dentro de este periodo todas las piezas defectuosas serán reemplazadas gratuitamente siempre que el defecto no sea resultado de un uso incorrecto, accidente o negligencia. Mientras se encuentre bajo garantía las revisiones las debe llevar a cabo el proveedor.

A pesar de la descripción y las especificaciones de los aparatos contenidas en el Manual del Usuario, Techne (Cambridge) Limited se reserva por medio de este documento el derecho a efectuar los cambios que estime oportunos tanto en los aparatos como en cualquier componente de los mismos.

Este manual ha sido preparado exclusivamente para los clientes de Techne (Cambridge) Limited y nada de lo especificado en este folleto de instrucciones se tomará como una garantía, condición o aseveración de la descripción, comerciabilidad o adecuación para cualquier fin específico de los aparatos o sus componentes.

Mantenimiento

ESTE APARATO DEBE SER DESMONTADO SOLO Y EXCLUSIVAMENTE POR PERSONAL DEBIDAMENTE CAPACITADO.

EL RETIRAR LOS PANELES FRONTALES O TRASEROS SUPONE DEJAR AL DESCUBIERTO TENSION DE LA RED PELIGROSA.

EL EQUIPO NO CONSTA DE NINGUNA PIEZA DE CUYO MANTENIMIENTO SE PUEDA ENCARGAR EL USUARIO.

En el caso improbable de que experimentara algún problema con su aparato que no pudiera resolver con facilidad, debería ponerse en contacto con su proveedor y devolverlo si fuera necesario. Indique de forma detallada todos los defectos que haya notado y devuelva el equipo en su embalaje original. Techne no aceptará responsabilidad alguna por daños causados en equipos que no estuvieran debidamente embalados para su envío; si tuviera alguna duda, póngase en contacto con su proveedor. Sirvase consultar el Certificado de Descontaminación suministrado con su aparato.

1. Limpieza

Antes de limpiar su aparato, desconéctelo SIEMPRE de la fuente de alimentación y permita que se enfríe por debajo de los 50°C.

Este aparato se puede limpiar pasándole un paño húmedo enjabonado. Hágalo con cuidado para evitar que caiga agua dentro del mismo. No utilice limpiadores abrasivos.

2. Desconexión en caso de sobretemperaturas

El sistema de desconexión en caso de sobretemperaturas es un dispositivo mecánico sensible (una sacudida mecánica podría desconectarlo).

- Si el calefactor no recibiera alimentación, compruebe el enchufe y el cable de la toma de corriente; a continuación vuelva a ajustar el control del dispositivo.
- Una desconexión repetida indicaría una avería grave; puede que tenga que devolverle el aparato a su proveedor para su reparación.

3. Fusibles

Su aparato está protegido por uno o dos fusibles. Sólo deben cambiarlos personal debidamente capacitado.

Si los fusibles se fundieran repetidamente, esto indicaría una avería grave y puede que tuviera que devolverle el aparato a su proveedor para su reparación.

INTRODUCTION

Read the whole of this book before commencing work with the unit.

Blotting techniques in which DNA, RNA or protein are immobilised onto nylon or nitrocellulose filters form a cornerstone of molecular biology. Detection of the desired sequence is usually performed using radioactive probes. Given the expense and hazardous nature of the probes, probing should:

- a) be performed under safe conditions
- b) use minimal volumes (to improve signal and reduce expense)
- c) allow reuse of materials
- d) be simple to use

The Techne Hybridiser meets all these requirements.

Up to five 25 x 25cm filters can be probed in one of the large hybridisation tubes. Hybridisations can be performed in a minimal volume of 5ml, an 80% reduction over conventional systems, reducing expense and improving signal. The operator is protected from irradiation throughout and the apparatus is extremely simple to use. However, the chemical manufacturer's safety precautions must be used when using the Hybridiser.

The Techne Hybridiser also incorporates the following features:

- a) a temperature range of ambient +5°C to 85°C.
- b) it holds 1, 2 or 3 80mm diameter hybridisation tubes.
- c) it will hold 3, 6 or 9 x 44mm diameter tubes if you use a three-tube carrier.
- d) it will hold 4, 8 or 12 mini tubes if you use a four-tube carrier.
- e) the Hybridiser comes with adjustable feet to enable accurate levelling.

Unpacking

When you receive your new Roller-Blot remove all the packing. Check the unit for any transit damage. If there is any transit damage at all inform Techne Sales Department or your Techne dealer immediately.

When unpacking the unit, check that the following have been removed from the packing: a power cable; a tube of silicon grease; a decontamination certificate and a Guarantee Card.

Check that the unit is the correct rating for your power supply by looking on the Rating Plate which is on the rear of the unit.

Within the guarantee period, shown on the Guarantee Card, we undertake to supply replacements free of charge for parts which may, on examination, prove to be defective, provided that the defect is not the result of misuse, accident or negligence. Any instrument requiring service under this guarantee should be sent to the supplier through whom it was purchased, or, in the case of difficulty, it should be carefully packed in its original packing and consigned, carriage paid, to us. Techne takes no responsibility for returned goods damaged in transit.

Returned goods will not be processed without a Returns Authorisation Number. Call + (44) (0)1223 832401 for a number. On all correspondence, please quote the Serial Number in full and/or the Sales Order Number. **Please write the Returns Number on the outside of any packing.**

Specification

Temperature selection	Digital
Temperature display	LED
Temperature sensor	thermistor
Temperature range	ambient +7° to 85°C
(NOTE: minimum temperature must be greater than 5°C above ambient)	
Set point resolution	0.1°C
Temperature accuracy	±2°C
Temperature stability in the tubes *	±0.2°C
Temperature uniformity *	±0.5°C
Warm up time within tube (20° to 85°C)	35 mins
Heater power	750 W
Rotation of hybridisation tubes	3 to 4 rpm dependent on supply frequency
Maximum number of hybridisation tubes	3 large tubes or 9 small tubes or 12 mini tubes
External dimensions	
width	325mm
depth	525mm
height	375mm
Weight	
net	17kg

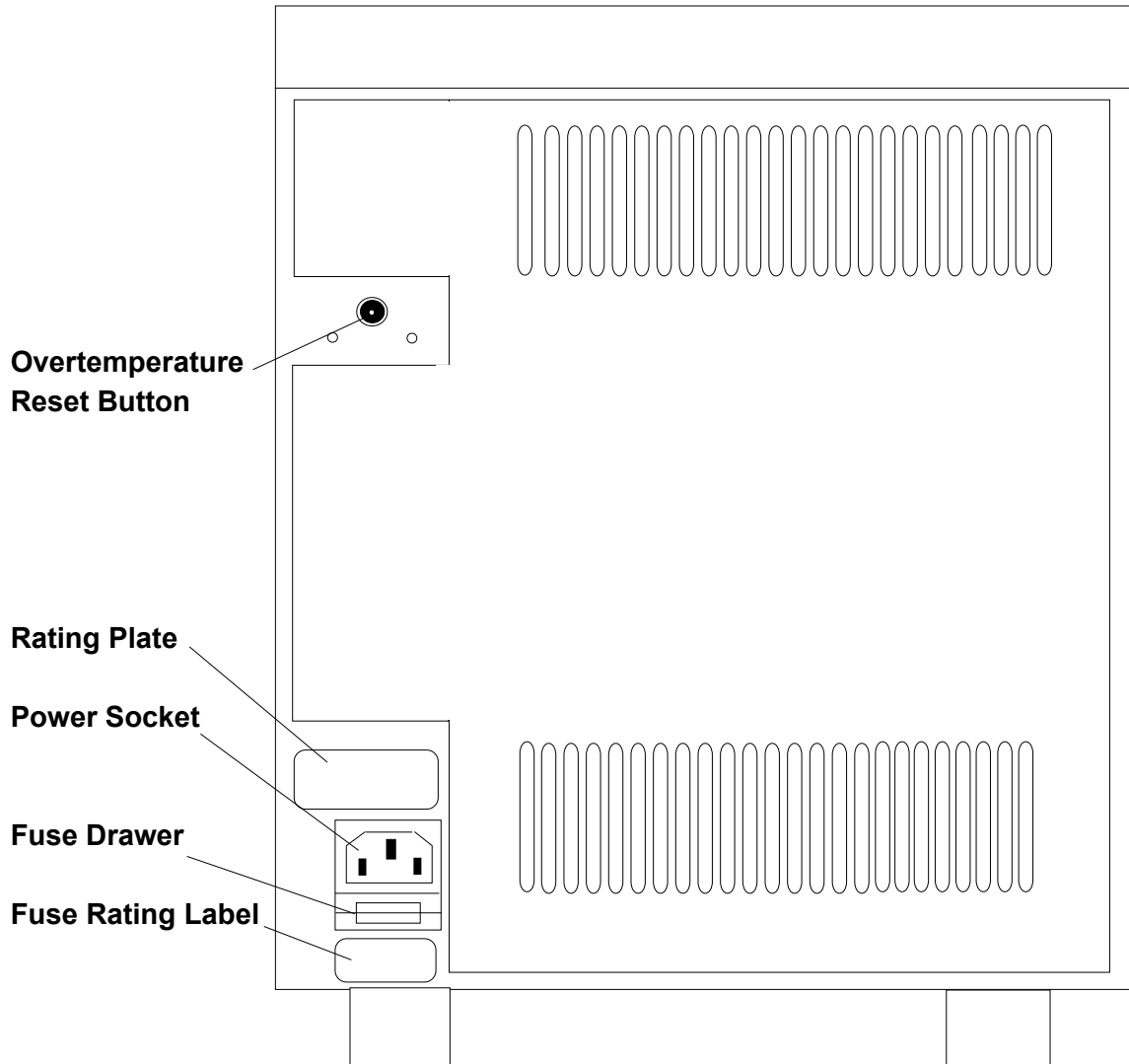
* Temperature measured in the centre of each tube.

The Hybridiser includes a preset re-settable overtemperature cutout.

For the Hybridisation Tubes see the list under Accessories

Installation

- 1 Place the unit on a suitable bench, a flat workspace, or in a safety cupboard if required, ensuring that the air inlet and outlet louvres are not obstructed.
- 2 Insert some liquid into a tube and place the tube in the Hybridiser. Adjust the feet by unscrewing them anticlockwise slightly until the unit is level. Check the level by putting the tube in different positions.
- 3 Plug the mains cable into the socket on the rear of the unit.



Back of the Roller-Blot

Check that the overtemperature cutout button is not protruding. The cutout is a sensitive mechanical device and mechanical shock can cause it to trip. If the button is protruding merely press it in and the trip will be reset.

Switching On

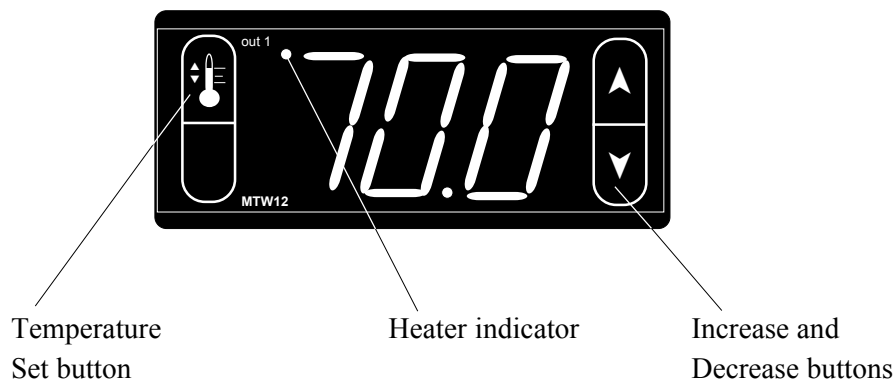
Once your HB-3D is connected to a power supply, switch it on using the power switch on the front panel.



Front panel of the Roller-Blot

Temperature Control

Press and hold the top left hand button (the bottom one is inoperative) on the controller and, at the same time, press one of the right hand buttons. The up arrow button will increase the set temperature and the down arrow button will decrease the set temperature.



The Heater Indicator will be lit while the heater is on.

Controller Display

Warning

THE UNIT WORKS UP TO 80°C. This temperature can cause burns. Techne take great efforts to protect operators from hazards, but the following points are brought to your attention:

- 1 Use care and wear protective gloves to remove hybridisation tubes from the cabinet if the unit is at high temperature.

If the protocol allows, it is better to switch off the unit and open the hood to allow the unit to cool to below 40°C before attempting to remove the tubes.

- 2 The coloured end cap of the 80mm large tube and the 44mm small tube has two holes so you have to be careful not to spill the probe through these.

One is the hole which allows the air to expand when the tube is heated.

The other is the filling hole which is revealed when the spindle cap is removed.

DO NOT TIP THE TUBE SO THAT THE COLOURED END IS DOWN AS THIS WILL CAUSE A SPILLAGE.

- 3 The unit has been designed to conform to international safety specifications and is fitted with a resettable over-temperature cutout. If, for any reason, the temperature rises above a safe level for the instrument, the overtemperature protection cuts out the heater, but the tubes continue to rotate. Check the reason for the cut out and, if there is no obvious cause, reset the cutout once the unit has cooled. The reset, on the back of the unit, is operated by pressing the centre of the button.
- 4 If the Controller displays 'Lor', the thermistor has broken or become disconnected and the unit will cool down automatically.

Servicing by Techne and their Agents

Please note that neither Techne nor any of their agents can accept the return of ANY GLASSWARE from these units.

If the unit is returned it must be thoroughly decontaminated and a CERTIFICATE OF CLEANLINESS returned with the unit.

OPERATION

The Tubes

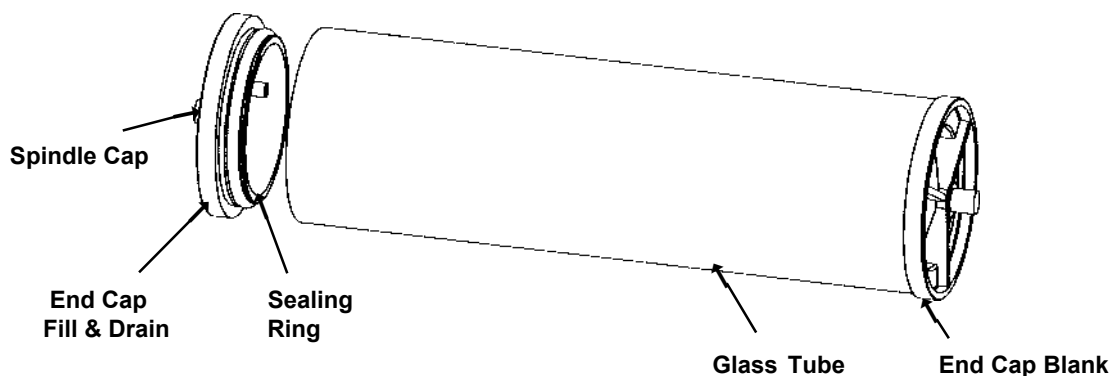
The Hybridisation Tubes must be checked regularly and replaced if any damage occurs. Any damage to the ends of the tubes can cause them to break when the end caps are inserted.

Each tube must be fitted with a radiation shielding end cap if you are using a radioactive probe. These end caps are supplied with all tubes which are supplied with the HB-3D and any other tubes supplied after December 1999. Normal handling procedures must be observed when handling any tube.

Load the membrane and reagents according to which size hybridisation tube you are using.

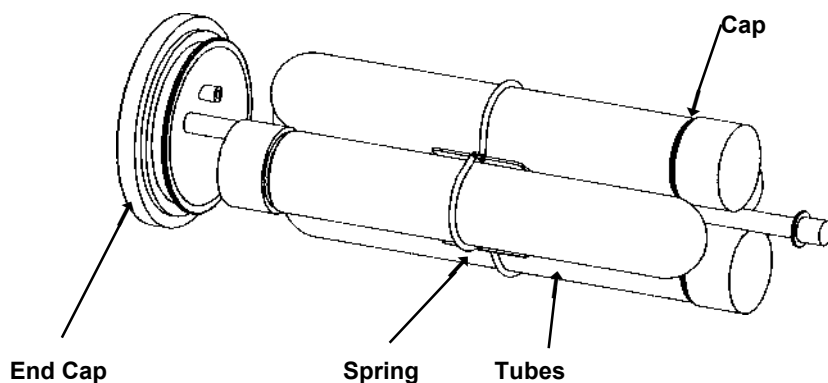
Large tube (80mm diameter) assembly

Remove the tube end cap which has the holes in it. Place the filters in the tube and replace the end cap. A small quantity of Techne O-ring grease, see the list of accessories, **must** be smeared on the seal to facilitate the insertion of the end cap. Remove the spindle cap and the liquids appropriate to the protocol may then be added through the hole in the spindle using a syringe. Replace the spindle cap and press it onto the spindle so that it clicks into place. Note: the tube will not rotate properly if the cap is not fitted securely.



Mini tube (4 x 32mm dia) assembly

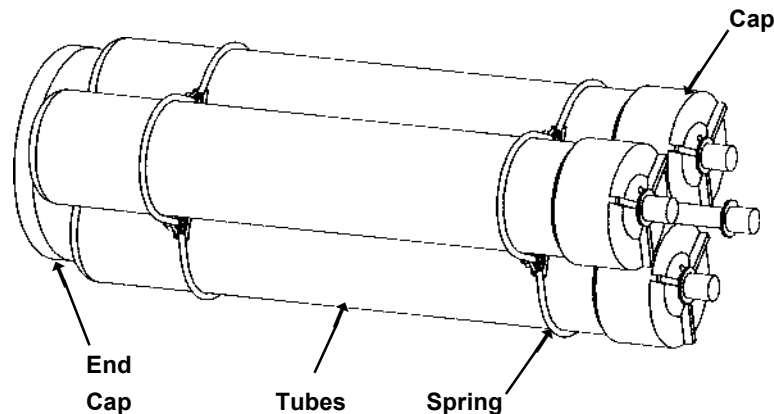
Unscrew the end cap of the tube. Place the filters and the liquids appropriate to the protocol in the tube and replace the end cap. Fix the tube into a multi-tube holder, using the springs, and ensure that there are four tubes in the holder. The end caps must be as shown, on alternate ends. The multi-tube holder will not rotate properly if there are not four mini tubes in it.



Small Tube (3 x 44mm dia) assembly

Unscrew the tube end cap. Place the filters in the tube and replace the end cap. Remove the spindle cap and the liquids appropriate to the protocol may then be added through the hole in the spindle using a syringe. Replace the spindle cap and press it onto the spindle so that it clicks into place.

The assembly is similar to the four tube assembly but the end caps do not have to be at different ends of the carrier. Fix the tube into a multi-tube holder, using the springs, and ensure that there are three tubes in the holder. The multi-tube holder will not rotate properly if there are not three small tubes in it.



The Roller-Blot

The front middle tube support is removeable should you require it out of the way. It is held onto the Roller-Blot with a knurled, captive screw.

- 1 Insert the tubes or tube holder into the Hybridiser ensuring that they rotate freely and engage on the drive rollers.
- 2 Close the hood.
- 3 Connect the mains electricity supply to the mains socket at the rear of the unit. Switch the power ON. The Controller display on the front panel will light
- 4 Press and hold the top left hand button (the bottom one is inoperative) on the controller and, at the same time, press one of the right hand buttons. The up arrow button will increase the set temperature and the down arrow button will decrease the set temperature.
- 5 The Heater Indicator will be lit while the heater is on.

BASIC PROTOCOL FOR SOUTHERN HYBRIDISATIONS *

INSERTION OF FILTERS

Place a wet or moist filter, DNA side facing inwards, into a hybridisation tube and allow it to adhere to the glass. Large trapped air bubbles should be smoothed out with a glass pipette; smaller air bubbles are acceptable and do not interfere with hybridisation so long as the surface of the filter is covered with hybridisation fluid.

Several filters may be placed in one tube; there is a slight loss of signal, but no increase in background in the lower filters.

PRE-HYBRIDISATION

Add 5 or 10ml of fluid, according to the number of filters and the size of tube, so that the filters are covered. Allow to pre-hybridise for usual period.

HYBRIDISATION

Drain off the pre-hybridisation fluid by inverting the tube. Add hybridisation liquid with radioactive probe added by using a syringe and needle through the hole in the blue end-cap. The minimum volume for a single filter is 5ml.

WASHES

Washing depends on the stringency required.

One method is to wash genomic blots in the following fashion:

- 1) 2 x SSC, 50ml for 10 minutes
- 2) 2 x SSC, 50ml for 10 minutes
- 3) 0.1 x SSC, 0.1% SDS x 50ml for 10 minutes

This gives very clean backgrounds.

NOTE

- 1) All radioactive waste can be collected for disposal; none need be disposed of down the sink.
- 2) Radioactive probes can be collected and reused several times.
- 3) As the protocols for this unit usually involve the use of radioactive materials the appropriate manufacturer's safety precautions must be taken into consideration.

* Courtesy of: Dr M J S Dyer.

When the Protocol is Finished

When the protocol has finished switch off the unit. Open the hood and remove the tubes, again being careful to keep the coloured end-cap uppermost. Remember the tubes may be hot. Either wear gloves or, if the protocol permits, allow the tubes to cool before removal.

TECHNICAL INFORMATION

Brief fault finding notes are given in this section.

NOTE THAT THIS EQUIPMENT SHOULD ONLY BE DISMANTLED BY PROPERLY TRAINED PERSONNEL. REMOVING THE CASE EXPOSES POTENTIALLY LETHAL MAINS VOLTAGES. THERE ARE NO OPERATOR MAINTAINABLE PARTS WITHIN THIS EQUIPMENT.

Operator Maintenance

General

Should you experience any problems with your Roller-Blot which cannot be easily remedied, you should contact your supplier and return the unit if necessary.

Fill in the Decontamination Certificate provided with the unit and return it to Techne Service department giving as much information as possible to help diagnose the fault. Please remember to return the unit in its original packing, Techne accept no responsibility for damage to units which are not properly packed: if in doubt, contact your supplier.

Overtemperature Cutout

The overtemperature cutout is a sensitive mechanical device and mechanical shock can cause it to trip.

In the event of no heater power, check the mains plug and lead, then reset the cutout control by depressing the centre of the button.

Repeated operation of the cutout indicates a serious fault: you may need to return your unit to your supplier for repair.

Fuses

If the controller fails to light when power is supplied to the unit the fuses may have blown. Check that there is no external cause such as a faulty plug; check both fuses and replace any faulty fuse with one of the correct value. Fuse values are given on the label next to the mains input socket.

O ring seals on the Hybridisation Tubes

The O ring seals on the 80mm dia Hybridisation Tubes must be checked regularly and replaced before a leak occurs. Each tube is provided with 6 spare O rings and further O rings can be obtained from Techne or your dealer.

Hybridisation Tubes

The Hybridisation Tubes must be checked regularly and replaced if any damage occurs. Any damage to the ends of the tubes can cause them to break when the end caps are inserted. Further Tubes can be obtained from Techne or your dealer.

Cleaning your Roller-Blot

Before cleaning your unit ALWAYS disconnect from the power supply and allow to cool.

You can clean the case of the Roller-Blot with a cloth dampened in soapy water. No part of the unit should be immersed in solvents. Do not use acetone or abrasive cleaners.

DO NOT USE ETHANOL OR METHYLATED SPIRITS ON THE ACRYLIC HOOD; these may make the acrylic go cloudy.

If You Spill the Fluid

Because of the nature of operation of the Hybridiser, the complete ductwork system must be cleaned if a spillage does occur. This is to remove any airborne particles which may have been blown around the system and to guarantee full operator safety.

Switch the Roller-Blot off and disconnect it from the power supply. Follow this sequence of operations when the Hybridiser has been allowed to cool below at least 50°C :

- a) Remove all glassware from the Roller-Blot.
- b) Remove the front middle tube support. It is held onto the Roller-Blot with a knurled, captive screw.
- c) Remove the back panel of the inner chamber by removing the five screws which hold it to the Roller-Blot. You will then be able to clean the fan, heater and ducting.
- d) Clean all surfaces of the inner chamber using a suitable cleaning and decontaminating solution.

Be careful of the drive shafts.

Cleaning and decontamination materials which Techne recommend include:

Decon 90

Neutracon

or mild detergent.

Accessories and Spares

The following may be purchased from Techne or their dealers. All Techne tubes are made from Borosilicate glass. These tubes are the preferred tubes (they also fit the HB-2D):

FHB16	80mm external diameter hybridisation tube assembly complete with sealing rings and end caps
FHB15	80mm external diameter tube only
6101082	End cap with holes (blue) less sealing ring
6101387	Spindle cap (for use with 6101082).
6101083	End cap without holes (natural) less sealing ring
6101090	Sealing ring (for 70°C operation)
6101488	Sealing ring (accessory for 85°C operation)
6101351	Techne O-ring Grease (tube)
FHB41	4 x 31mm external diameter tubes only
FHB61	4 tube holder
6102375	End cap for the mini tube
6102376	Seal for the mini tube
6101387	Spindle cap
6101828	Spring for the multi-tube holder
FHB62	8 tube carrier (Falcon disposable tubes)
FHB72	3 tube carrier assembly complete with seals and end caps
FHB71	Tube 44mm diameter
FHB70	3 tube carrier
6101387	Spindle cap
6007625	Seal (for use with 44mm external diameter tubes).
6102193	Screw on end cap, less seal

FHB3RS80	Radiation Shielding End Cap with seal 80mm tubes
FHB3RS44	Radiation Shielding End Cap with seal 44mm tubes
FHTRACK	Hybridisation Tube Rack
FMEM2020	Separation Membrane 20cm x 20cm
FHB3DTA	Short Tube Adaptor
FHB3ST1	Rocking Platform 20/40rpm
FHB3ST2	Rocking Platform 20/60rpm

You will need an adaptor, part number FHB3DTA, to use the tubes which also fit the HB-1D. Contact Techne Sales for details.

