Cole-Parmer®

FSB-200 Series
Fluidized Sandbath



Instruction Manual

7001615-CPB Version 2.3

Cole-Parmer®
essentials

IMPORTANT SUPPLEMENTARY SAFETY INFORMATION

Introduction

Cole-Parmer fluidised baths are safe and effective equipment when installed and operated correctly in accordance with the user manual. However, if used incorrectly they can pose a safety risk. Antylia Scientific have designed all models of fluidised baths to protect operators from hazards but users should pay attention to the following points.



Caution

1. Please read the user manual before installation and use.
2. Cole-Parmer fluidised baths can heat up to 600°C, 700°C or even 1100°C. High temperatures are dangerous and can cause serious burns to operators and ignite combustible material.
3. Use care and wear protective gloves to protect hands and protective glasses to protect eyes.
4. Do not put hot objects on or near combustible objects.
5. Do not operate the unit close to inflammable liquids or gases.
6. Do not place any liquid directly in the unit.
7. Always ensure a suitable, adequate ventilation system is used when equipment is in use.
8. Always install fireproof metal ducting with sufficient airflow.

Maintenance

1. When performing maintenance always disconnect from power supply and cool below 50°C.
2. Antylia Scientific recommend regular cleaning of fluidised baths. Externally, wipe with a damp soapy cloth. No abrasive cleaners. Care should be taken to prevent any water entering the unit.
3. Regular internal and external inspection of extraction ducting is recommend to detect any damage and ensure the internals are clean. Any build-up of particles or debris discovered in the extraction ducting requires the ducting to be cleaned or replaced.
4. In fluidised baths used for polymer burn-off, please regularly inspect fluidising medium, remove any foreign debris and replace with clean fluidising medium as required.
5. Never top-up a hot fluidised bath with cold fluidising medium. Always cool below 50°C first.

Please note

1. Please ensure an adequate risk assessment is performed before use of a fluidised bath.
2. Please ensure the appropriate temperature is used for the application, always stay safely below the combustion temperature of any material or sample in a fluidised bath.
3. Fluidising airflow must be switched on before heating a fluidised bath, and left operational until the baths cools to below 50°C unless performing dead-bed calibration function.
4. Do not overfill fluidising media. The fill-level is 6 inches (15cm) below top surface when cold.
5. In fluidised baths used for polymer burn-off, always remove excess polymer from sample.
6. In applications where materials being treated produce acidic vapours during thermal decomposition, it is recommended a fume scrubber is utilised to ensure fume emission from the plant conforms to local regulations.
7. If you have any questions please contact technehelp@bibby-scientific.com.

FSB-200-120, FSB-200-240 OPERATOR'S MANUAL

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SAFETY AND INSTALLATION

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.

Antylia Scientific 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 Cole-Parmer 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 Antylia Scientific the protection provided by the equipment to the Operator may be impaired.

All Cole-Parmer units have been designed to conform to international safety requirements and are fitted with an overtemperature cut-out. On some models, the cut-out is adjustable and should be set to suit the application. On all other models the cut-out 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 Cole-Parmer 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 13 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. Note that the following symbol next to the indicator lamp on the front panel of the units and has the followingmeanings:
   ~ : the power indicator
6. 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, Antylia Scientific 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 Antylia Scientific 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.

OPERATOR MAINTENANCE

NOTE: THAT THIS EQUIPMENT SHOULD ONLY BE DISMANTLED BY PROPERLY TRAINED PERSONNEL. REMOVING THE SIDE, FRONT OR REAR PANELS EXPOSES POTENTIALLY LETHAL MAINS VOLTAGES. THERE ARE NO OPERATOR 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. Antylia Scientific 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 it from the power supply and allow it 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. 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.

INTRODUCTION

Veuillez 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.

Antylia Scientific 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 :

- PROCEDER AVEC SOIN ET PORTER DES GANTS POUR SE PROTEGER 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 Cole-Parmer 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. Sur certains modèles, ce coupe-circuit est réglable pour s'adapter à l'application désirée. Sur d'autres modèles, il est pré-réglé 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	*220V-240 V*	*110V-120 V*
Phase	marron	noir
Neutre	bleu	blanc
Terre	vert/jaune 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 soient pas obstrués.

5. Les symboles ci-dessous situés à côté des témoins lumineux sur la face avant de l'appareil ont la signification suivante: ~ : témoin d'alimentation.

6. 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 visde 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 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, 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 leurs composants.

ENTRETIEN UTILISATEUR

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

LORSQUE LES PANNEAUX AVANT, ARRIERE ET LATERAUX 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. 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. Bei einigen Modellen ist der Übertemperaturabschalter verstellbar und sollte je nach Anwendung entsprechend eingestellt werden. Bei allen anderen Modellen ist 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	*220V-240V*	*110V-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. Wenn die Anzeigenlämpchen an der Vorderseite leuchten, hat dies folgende Bedeutung:

   ~ : Gerät ist eingeschaltet.
6. 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 hiermit das Recht vor, Änderungen an den Geräten bzw. an einzelnen Geräteteilen durchzuführen.

Diese Gebrauchsanleitung wurde ausschließlich dazu erstellt, um Kunden die Handhabung der Techne-Geräte zu erleichtern. Nichts in dieser Gebrauchsanleitung 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 GERÄUSES 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 und thermo-DUX 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. 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 eingesandt 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. En algunos modelos el sistema de desconexión es variable, lo que le permite elegir la temperatura según sus necesidades. En otros, 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.

Conexiones	*220V-240V*	*110V-120V*
Linea	Marrón	Negro
Neutro	Azul	Blanco
Tierra	Verde/amarillo	Verde

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 pueden aparecer junto a las luces indicadoras en el panel frontal del equipo, tienen los siguientes significados: ~: Indicador de potencia.
6. 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 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 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 LATERALES, 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. Sírvase 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 parae evitar que caiga agua dentro del mismo. No utilice limpiadores abrasivos.

2. 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.

INTRODUZIONE

Prima di utilizzare l'apparecchio, leggere tutte le informazioni contenute in questo manuale.

ATTENZIONE

Le alte temperature sono pericolose: possono causare ustioni gravi all'utilizzatore e possono causare la combustione di materiale infiammabile. La Techne ha posto particolare cura nel progettare questo strumento, al fine di proteggere gli operatori da eventuali pericoli, ma gli utilizzatori devono prestare attenzione ai seguenti punti:

- Utilizzare con attenzione e indossare guanti protettivi.
- Non mettere vicini oggetti caldi o oggetti infiammabili.
- Non azionare il riscaldatore Techne vicino a liquidi infiammabili o benzine.
- Non introdurre nessun liquido all'interno dell' unità.
- In ogni caso Usare Buon Senso.

SICUREZZA PER L'UTILIZZATORE

Il personale che utilizza l'apparecchiatura Techne deve avere a disposizione la documentazione necessaria al fine di assicurare la loro incolumità.

È importante che solo personale adeguatamente addestrato utilizzi questo apparecchio, in conformità alle istruzioni contenute in questo manuale e nel rispetto delle normative e procedure generali di sicurezza. Se l'apparecchio è utilizzato in modo non specificato da Techne, la protezione fornita dall'apparecchiatura all'utilizzatore potrebbe essere a rischio.

Tutte le unità Techne sono state progettate in conformità ai requisiti internazionali di sicurezza e sono equipaggiate con un interruttore anti surriscaldamento. Su alcuni modelli, l'interruttore è regolabile e dovrebbe essere impostato secondo l'utilizzo. In tutti gli altri modelli l'interruttore è preregolato per proteggere l'unità.

Se si dovesse verificare qualche problema di sicurezza, disconnettere l'apparecchio dalla rete.

INSTALLAZIONE

1. Tutti gli apparecchi Techne sono forniti di un cavo di alimentazione. Questo può essere integrato nell'apparecchio o separato.
2. Prima di collegare l'apparecchio alla presa di alimentazione, controllare il voltaggio indicato sulla targhetta. La targhetta identificativa si trova sul retro dell'apparecchio. Collegare il cavo di alimentazione in una presa appropriata secondo la tabella seguente.

L'apparecchio deve essere collegato alla messa a terra per assicurare la giusta sicurezza elettrica.

Connessioni	*220V-240V*	*110V-120V*
Tensione	Marrone	Nera
Neutro	Blu	Bianco
Terra	Verde/Giallo	Verde

Il fusibile all'interno dell'apparecchio protegge l'apparecchiatura e l'utilizzatore.

Tenere presente che gli apparecchi riportanti sulla targhetta 230 V funzionano a 220V. Gli apparecchi riportanti 120V funzionano a 110V. Comunque, in entrambi i casi la velocità di riscaldamento diminuirà approssimativamente dell'8%.

3. Collegare il cavo elettrico alla presa di corrente sul retro dell'unità.
4. Posizionare l'unità su un luogo adeguato, su una superficie di lavoro piana oppure, se necessario, sotto una cappa aspiratrice, assicurandosi che le prese di aria sulla parte inferiore siano libere da ostruzione.
5. I simboli seguenti, che possono essere collocati in prossimità delle luci di indicazione sul pannello anteriore dell'apparecchio, hanno i seguenti significati:

I	Acceso
O	Spento

DOPO L'USO

Quando avrete terminato di riscaldare i campioni, ricordate che le parti dell'apparecchio – le provette, i loro supporti e gli altri accessori – possono essere bollenti. Seguire le precauzioni elencate in precedenza.

GARANZIA

L'apparecchio è garantito contro ogni difetto del materiale o fabbricazione per il periodo specificato sul certificato di garanzia accluso. Questo periodo decorre dalla data di acquisto, e durante il quale tutte le parti difettose verranno sostituite gratuitamente purché il difetto non sia causato da un uso non appropriato, da cause non imputabili a difetti di fabbricazione o negligenza. L'assistenza durante questo periodo sarà garantita dal fornitore.

Ferme restando la descrizione e le caratteristiche dell'apparecchio contenute nel Manuale d'uso dell'utilizzatore, la Techne si riserva in ogni caso il diritto di effettuare le modifiche che riterrà necessarie all'apparecchio o ai suoi componenti.

Questo Manuale è stato realizzato esclusivamente a vantaggio dei clienti della Techne e in alcun modo potrà essere utilizzato come garanzia, condizione o rappresentazione concernente la descrizione, commercializzazione, adeguamento alle condizioni di utilizzo o altro degli apparecchi o delle sue componenti.

MANUTENZIONE

Questo apparecchio dovrà essere aperto esclusivamente da Personale adeguatamente addestrato. La rimozione dei pannelli laterali, frontali o posteriori può esporre potenzialmente a voltaggi di corrente letali. All'interno dell'apparecchio non ci sono parti manutenibili da parte dell'utilizzatore.

Nell'eventualità che si riscontri un problema con l'apparecchio che non può essere facilmente risolto, si dovrà contattare il proprio fornitore e restituire, se necessario, l'apparecchio. Si prega di specificare nel dettaglio i difetti riscontrati e di ricordare di restituire l'apparecchio nel suo involucro originale. La Techne non si fa carico di alcuna responsabilità per danni subiti dall'apparecchio che non sia stato propriamente

imballato per il trasporto; in caso di dubbio, rivolgersi al fornitore. Vedere il Certificato di Decontaminazione fornito con il vostro apparecchio.

1. Pulizia

Prima di pulire il vostro apparecchio, disconnettere sempre la presa di alimentazione e lasciare raffreddare sotto i 50° C. Questo apparecchio può essere pulito passando un panno inumidito con sapone. Si deve prestare attenzione onde prevenire l'ingresso dell'acqua all'interno dell'apparecchio. Non utilizzare per la pulizia sostanze abrasive.

2. Fusibili

L'apparecchio è protetto da uno o due fusibili. Questi dovrebbero essere sostituiti solo da personale qualificato. Se i fusibili si bruciano frequentemente ciò indica un malfunzionamento serio e in questo caso si consiglia di contattare il fornitore per le riparazioni.

INTRODUCTION

PACKAGING

Two cartons will be received, one containing the fluidized bath, the other containing aluminum oxide (20 lb.)

Retain the carton in which the bath is received.

ELECTRICAL

Check that the voltage and current rating on the serial number plate near the power cord is correct.

INSTALLATION

Place the bath on a firm, level surface allowing access from the top for insertion and removal of objects in the bath. Turn energy regulatory and gate valve to the off position.

Connect the air inlet tube to a clean, dry air supply connected to 15 psi using a minimum 3/8 inch ID hose, keeping the length as near 6 ft. as possible.

Note that gases other than air may be used (for example nitrogen and argon, should be inert atmosphere required).

If Col-Parmer FSB-200-TC controller is not used, connect the power cord to a properly fused electrical outlet conforming to the voltage and current requirements of the unit. If Model FSB-200-TC is used, refer to the instruction manual provided with the controller.

Fill the bath with the aluminum oxide to a depth no greater than 2 inches from the top rim of the bath.

Turn the main air supply on and adjust the pressure to 15 psi, 4-5 cfm. If the Techne air compressor is used, turn the compressor on.

Slowly open the gate valve on the bath, allowing air to flow into it. Observe the oxide expand and begin to bubble. Adjust the gate valve until bubbles of approximately ¾ to 1 inch diameter are breaking the surface.

If the FSB-200-TC controller is not being used, turn the energy regulator to a 5 setting*, (with a medium switch position on the FSB-200-120, FSB-200-240). The neon light will switch on and off for approximately equal times. Place the energy regulator to the 10 position and the neon light will be on continuously. The bath will be getting slightly warm.

*When the FSB-200-TC is used, the energy regulator should be turned up to 10. If a rapid heat up of the bath is required, set the energy regulator to 8-9 or high switch position (FSB-200-120, FSB-200-240). As the desired temperature is reached, turn the regulator down and the heat selector switch to medium or low until the temperature stabilizes.

Experiment with the position settings to establish a relationship between them and the bath temperature.

MAINTENANCE

This unit is designed for continuous operation and requires little maintenance.

The level of the medium must be maintained and periodically, the bath should be emptied and the medium screened (or even replaced).

Check the air filter to ensure that clean, dry air is used.

Periodically check the following components for damage and malfunctioning:

Porous Plate- Check for cracks or local deterioration of the surface, or for leakage of air around the peripheral seal.

Heaters- Check for bad "scaling", pin holes or signs of local deterioration. Check that the elements do not touch each other at any point, or touch the bath well.

Energy Regulator- When switched on electrically, the contacts can be heard to "click" on and off periodically (except when set at the 10 position).

Fail Safe Switch – When the bed is not fluidized, all the heater circuits are automatically broken. With the bed just "fluidized" the heater circuits should be completed. (Both tests should be made with energy regulator at 10). Status of the heaters is monitored by the neons on the front panel.
Heater Switch – On the FSB-200-120, FSB-200-240 model with the energy regulator set on 10, one neon
should be on in the medium position, two neons for high position.

PRECAUTION IN USE

The unit should be placed on a firm insulated level surface to prevent tipping over.

Objects should be slowly immersed into the bath. They should not be dropped into the bath. This will result in damage to the heaters and there is also the possibility of shock hazard.

Care should be exercised in handling mercury-in-bulb thermometers if they are used either for calibration or monitoring the temperature.

Air to the fluidized bath should be clean and free from traces of oil. Neglecting this warning will result in clogged porous plates and heaters will be damaged due to overheating.

The inherent advantages of a fluidized bath, such as no fumes or smell, no vapors and low temperature environment a few inches above the top of the bath , may give a false sense of security. It should be noted that the fluidizing media is at elevated temperatures and proper warning should be posted to prevent any injury to operating personnel.

When the bath has been running at high temperatures (200 °C or more) and the unit has to be turned off, only the power should be turned off. Fluidization should be maintained until the bath cools down to 200 °C or below. This will prevent premature failure of the heaters and damage to porous plate.

OPERATOR SAFETY

It is important that only suitably trained personnel operate this equipment. It must also be used in accordance with the instructions contained in this manual and with proper safety standards and procedures.

It is imperative that all personnel who may come into contact with our equipment have available such of our literature as they require to ensure their safety.

If there is any doubt whatsoever relating to the proper use of this equipment we will be pleased to assist you.

It is advisable to read the whole of this book before commencing work with the unit.

WARNING

Poor fluidisation causes hot spots, heater failure, and damage to other parts. Follow instruction book carefully. For correct fluidisation, pay attention to;

INSTALLATION
Ensure bath is level and air supply is adequate.

OPERATION
Adjust air valve for even fluidisation.

Do not insert objects larger than recommended.

Ensure objects do not lie in contact with container wall or porous plate.

MAINTENANCE
Regularly inspect and maintain air filter to eliminate oil vapour in air supply.

ALUMINA
Should the fluidised bath be stirred for a long period of time under damp or humid conditions, moisture may be absorbed by the alumina which is hydroscopic. To avoid violent fluidisation which occurs when damp alumina is heated above 100°C, operate the bath for a period of approximately 8 hours at 90°C prior to operation at elevated temperatures.

NEVER ADD COLD OR DAMP ALUMINA TO A HOT BATH AS THIS WILL ALSO CAUSE VIOLENT FLUIDISATION WHICH CAN BE DANGEROUS. Allow the bath to cool then add the fresh alumina. If this fresh alumina is a large portion of the charge then dry the whole charge as above.

FUME EXTRACTION
When used for processing items which may emit toxic or inflammable fumes, it is essential that an adequate fume extraction system be installed. The extraction system must be correctly sized to ensure that any toxic fumes are removed from the working environment.

To eliminate the risk of spontaneous ignition, the concentration of inflammable fumes above the bath and within the exhaust duct work must be kept below the lower explosive limit.

GUARANTEE

This instrument is guaranteed against any defect in material or workmanship for a period as 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 Instruction Book, Techne hereby reserves the right to make such changes as it shall see fit to the units or to any component of the units. This Instruction Book has been prepared solely for the convenience of Techne 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 the components.

CONTACT INFORMATION

If there is any doubt whatsoever relating to the proper use of this equipment our Sales or Technical Departments will be pleased to assist you. Similarly our Service Department will be pleased to assist you with any queries about servicing your FB-08.

For technical, sales or servicing information, contact your local Techne dealer or, Bibby Scientific Ltd.

FAULT FINDING

The following guide has been prepared should a fault develop with the fluidised bath. The procedures laid down should be followed using only the specified replacement parts. If the fault cannot be located by using this guide, Techne carry full service facilities.

If the unit fails to operate, check the fuse, electrical and air supplies.

These noted have been prepared to give the user a simple and systematic series of checks for fault correction.

Fault	**Bed will not fluidise**
Cause	Air lines broken or leaking
Action	Check all air lines and connections for leaks or restrictions
Cause	Incorrect air supply.
Action	Check air supply for correct pressure (minimum 15 psi), and adequate flow of 4-5 cfm.
Cause	Fluidizing material damp.
Action	Empty the bath. Blow air through it to remove all moisture. Dry the material before replacing it in the bath or use fresh charge.
Cause	Filters blocked or leaking.
Action	Check for leaks or restrictions.
Cause	Control valve malfunction.
Action	Check function.
Fault	**Bed fluidizing erratically in one spot**
Cause	Porous plate damaged.
Action	Empty the bath and check the area of the plate around the bad spot. If cracked or damaged, a new plate must be installed. (Refer to disassembly procedure).
Cause	Porous Plate leaking at the periphery (FSB-200-120, FSB-200-240).
Action	Reseal with water glass (Sodium Silicate). If plate still leaks, replace it.
Cause	Porous plate laden with oil film on the air supply side.
Action	Replace the porous plate.

Fault	**Bath not heating**
Cause	Incorrect power supply.
Action	Check supply voltage and make sure it confirms to the voltage rating of the bath.
Cause	Blown fuse.
Action	Remove the fuse and check. Replace if necessary with identical fuse.
Cause	Heater defective.
Action	Connect an ammeter (range 25 Amps AC) into the power leads. Adjust heater switch and observe the readings on the ammeter as follows:

FSB-200-120	120V	Medium	6.2 Amp
		High	12.4 Amp
FSB-200-240	240V	Medium	3.1 Amp
		High	6.2 Amp

Replace either heaters or switch as necessary.

Cause	Energy regulator not functioning.
Action	Connect an ammeter (25 Amps AC) in series with the power cord. Fluidise the bed. Turn the energy regulator knob to 5 (and heater selector switch to medium on FSB-200-120, FSB-200-240) and observe that the current alternates between 0 and the minimum currents shown in the preceding paragraph. If no current flowing, check remaining items and, if necessary, replace the regulator.
Cause	Fail safe switch not functioning.
Action	Repeat corrective procedure outlined above. The ammeter should read alternatively as above. If these currents are not registered, check all other items in this section and, if necessary, replace the fail safe switch.
Cause	Internal wiring is damaged.
Action	With the power cord disconnected remove the base plate of the unit and carefully check all the wiring. Refer to the wiring diagram in this booklet.
Cause	Failure of pneumatic circuit to fail safe switch.
Action	Disconnect the pipe at the end not connected to the fail safe switch. Blow into the tube. A definite click should be heard. Use the continuity meter to make sure that the electrical contact is being made inside the switch.

DISMANTLING PROCEDURE

In the following steps refer to the wiring diagram included in this manual:

To expose the energy regulator, fail safe switch, and electrical wiring, proceed as follows:

Disconnect electrical and air supplies, empty the bath medium. Turn the bath upside down.

Unscrew the hex nut holding the base plate and carefully lift the base plate.
Disconnect all flying leads between the baseplate and the main case at the terminal block on the baseplate.

Replacement of heater and porous plate.

Follow the steps described above.

Remove the whole stud assembly by unscrewing the lock nut.

Disconnect the heater wires from the terminal block mounted on side of outer case. Tag the leads so that they can be connected to the right terminals.

Unscrew the gate valve.

If the thermocouple is installed in the thermocuple well, remove it.

Slowly lift the outer case upwards. The whole inner assembly will now be exposed.
Tape the top rim to the inner bath.

Removal of the fiberglass insulation will expose the heater wire connections and lock nuts. To remove individual heaters, remove the appropriate link wires from the terminal ends and then unlock the nuts. From the outside of the container, squeeze the heater limbs together which will in turn withdraw the heater ends from the holes.

To replace the center heater it will be necessary to remove the top one first. To replace the bottom heater it is advisable to remove the porous plate first and work from the bottom. (FSB-200-120, FSB-200-240).

On models with a stainless steel porous plate (FSB-200-120, FSB-200-240), removal of the porous plate is done by removing the haxacon screws and nuts and lifting off the air chamber.

On replacing a porous plate the peripheral edge must be sealed with a glass solution (sodium silicate) after clamping up the screws.

ACCESSORIES

Overspill Flange	(Supplied as standard with fluidized bath.) Fits into the top of the inner container of the fluidized bath, having the effect of widening the top of the bath, avoiding spillage of the medium when the bed nears the top of the bath.
6031116	For models FSB-200-120, FSB-200-240
Pressure Regulator	Reduces the pressure of air from air line to suit the fluidized bath. The regulator is supplied with a pressure gauge.
7030783	For all 117V models (inquire about availability for 240V)
Air Filter	For providing uncontaminated air to the fluidized bath. This filter is recommended for use with regulator 7030783.
7030784	For all models
Air Compressor	For those who do not have an air line, this oil less unit with self Lubrication carbon vanes provides the proper air supply to fluidized SB series baths.
7030804	For all models
Aluminum Oxide	7030462 20 lb. aluminum oxide 7030463 34 lb. aluminum oxide 7030464 100 lb. aluminum oxide

TEMPERATURE CONTROLLER, FSB-200-TC

A P.I.D. micro-processor temperature controller, which bypasses the energy regulator, should be used when specific temperatures are required for laboratory and industrial applications. Model FSB-200-TC comes with a type K thermocouple (6009929) which fits into the sheath built into the SB series baths.

The unit is available in degrees C or F calibration.
It provides:

1) Precise Temperature Setting.
2) Improved Temperature Stability.
3) Stable Temperature Under Varying Loads.

FSB-200-TC Features

- Compact design, overall size 5.6 x 6.6 x 8.6 inches.
- Accepts mains voltage input of 80 to 260VAC *.
- Digital display of process temperature.
- Digital display of set point temperature.
- Three pole twist lock plug provided for fitting into outlet receptacle on rear of unit.

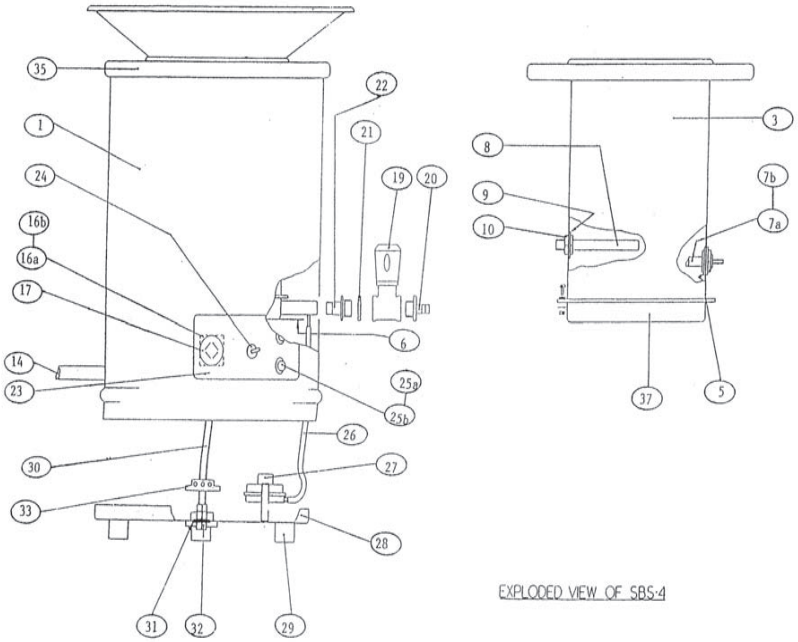
FSB-200-TC can be used with all models listed in this instruction manual.

** Note mains voltage input to FSB-200-TC must match voltage of the FBS bath under use.*

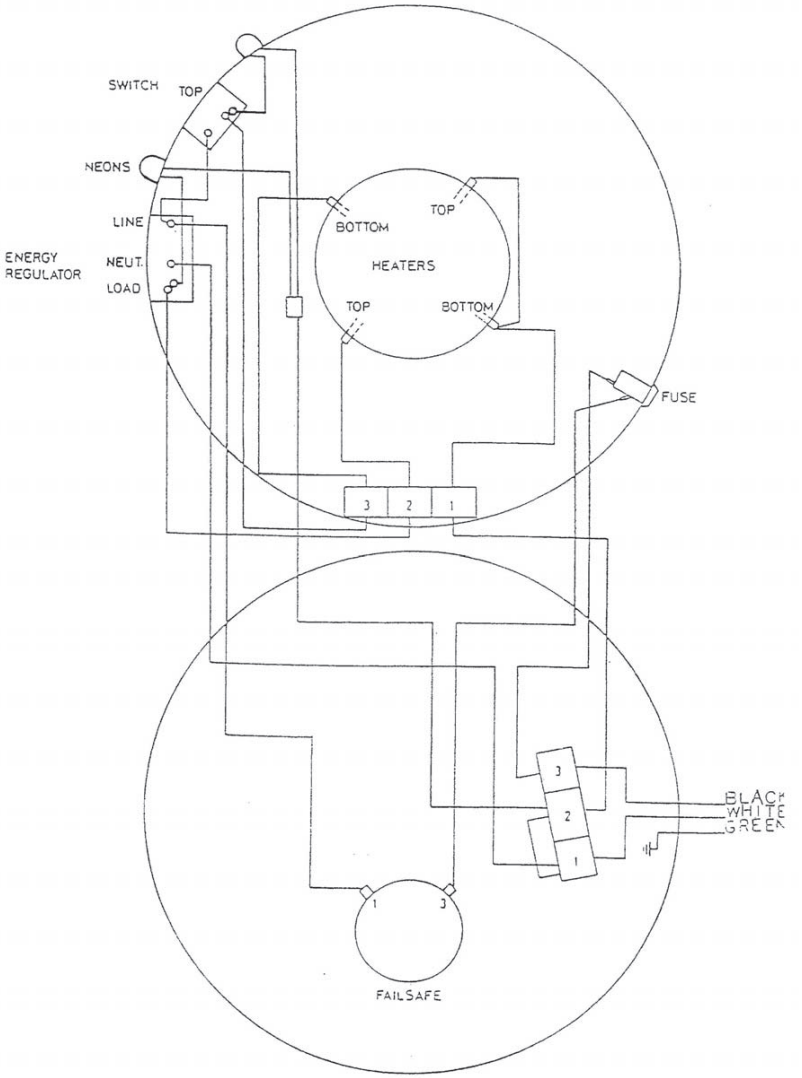
SPARE PARTS

No.	Description	FSB-200-120, FSB-200-240
1	Outer Case	7000513-CPB
2	Rim	-
3	Inner Container	7000689
4	Porous Plate	-
5	Support Porous Plate	7000493
6	Heat Shield	7000504
7a	Heater Assy 117V	7000459
7b	Heater Assy 240V	6009958
8	Thermocouple	7001397
9	Washer, T/C	6001749
10	Nut, T/C	7001398
11	Terminal Block	7000510
12	Fuseholder	7001248
13	Fuse, 120v	7001249(15A)
13	Fuse, 240v	7001250(10A)
14	Power Cord	7001269
15	Strain Relief	7001270
16a	Regulator 117V	6001315
16b	Regulator 240V	6001104
17	Knob	6001341
18	Caution Label	7001262
19	Gate Valve	6002437
20	Barbed Nipple	7001261
21	Locknut	6001113
22	Air Inlet Connector	7001254

No.	Description	FSB-200-120, FSB-200-240	
23	Front Label		6100367-CPB
24	Toggle Switch	-	7000494
25a	Neon Indicator 117V		7000505
25b	Neon Indicator		7001324
26	240V Tubing		7040049
27	Fail Safe Switch		6106011
28	Base		7000509-CPB
29	Foot Rubber		7000508
30	Threaded Rod		7000514
31	Washer, M8		7040079
32	Nut		7040078
33	Terminal Block		7000510
34	Insulation		7001367
35	Top Plate	-	7000511
36	Top Plate Support (not shown)	-	7000512
37	Air Chamber Assy	-	7000541



EXPLODED VIEW OF SBS-4


SWITCH
TOP
NEONS
LINE
ENERGY
REGULATOR
NEUT.
LOAD
BOTTOM
TOP
HEATERS
TOP
BOTTOM
FUSE
3
2
1
3
2
1
1
3
FAILSAFE
BLACK
WHITE
GREEN

NOTES

This product meets the applicable CE Directives and UKCA Legislation for radio frequency interference and may be expected not to interfere with, or be affected by, other equipment with similar qualifications. We cannot be sure that other equipment used in its vicinity will meet these standards and so we cannot guarantee that interference will not occur in practise. Where there is a possibility that injury, damage or loss might occur if equipment malfunctions due to radio frequency interference, or for general advise before use, contact the manufacturer.

Declaration of Conformity is available to view online at www.coleparmer.com

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Ordering Information

Order No.	Series	Model	Legacy SKU
01184-00	FBS-200	FSB-200-120	F932P
01184-02	FBS-200	FSB-200-240	F932D

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