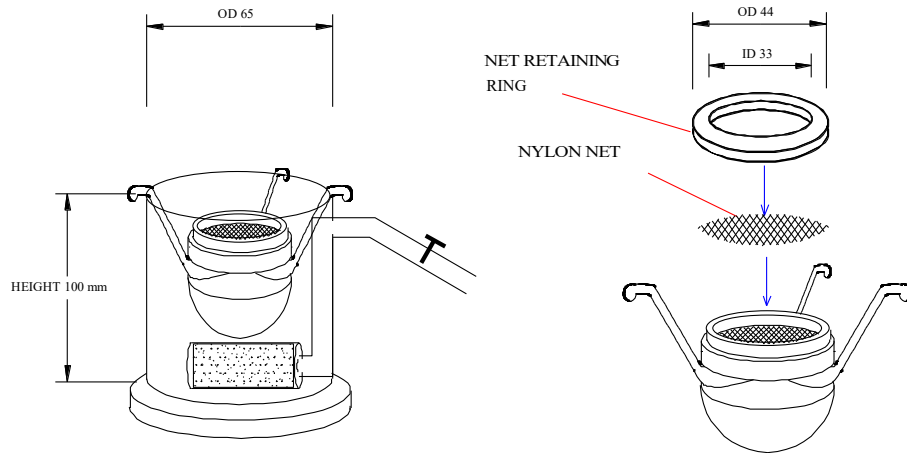


**ABOVE: Components of BSK1 Slice Keeper. View from above, the BSKV consists of a 200ml trough fitted with an air stone bubbler B and needle valve regulator A for fine control of gas. Three vertical side supports C, D and E keep the vessel stable and allow submersion in water baths with weighted rings for temperature control. BELOW: Dimensions**



BSKV holding vessel and BSK1 dimensions

\*Micro-90™ is a trademark of International Products Corporation USA



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*Innovative Engineering for Science*

## BRAIN SLICE KEEPER

### BSK1

## BRAIN SLICE KEEPER

### CAUTION !

**YOUR BRAIN SLICE KEEPER IS A PRECISION ENGINEERED TOOL FOR SCIENTIFIC RESEARCH. PLEASE TAKE A FEW MINUTES TO FAMILIARISE YOURSELF WITH THE KEEPER AND READ THROUGH THIS SHORT MANUAL BEFORE ATTEMPTING TO USE IT.**

**DO NOT USE ALCOHOL OR SIMILAR SOLVENTS IN ANY CONCENTRATION ON ANY PART OF THE KEEPER SINCE AS WITH MOST ACRYLICS, IT MAY FRAGMENT OR DEVELOP HAIR-LINE CRACKS. DO NOT AUTOCLAVE AS HEAT MAY CAUSE STRESS CRACKS TO DEVELOP.**

### OPERATION

The Brain Slice Keeper has been designed to pre-incubate brain slices prior to transfer into recording chambers. It consists of a pair of closely fitting acrylic rings, upper and lower, between which is wedged a sheet of fine nylon netting, designed to be easily replaced when necessary.

In operation, the BSK1 is totally immersed in an ACSF-filled purpose-designed holding vessel (BSKV) into which a 95% O<sub>2</sub>, 5% CO<sub>2</sub> gas mixture is supplied with an air stone bubbler. The bubbles rising from the base of the BSKV saturate the ACSF and provide constant circulation of medium to the slices which rest on the nylon net. Since the lower ring of the BSK1 carries a domed deflecting shield, bubbles are prevented from being trapped under the slices and ensure continuous circulation of medium.

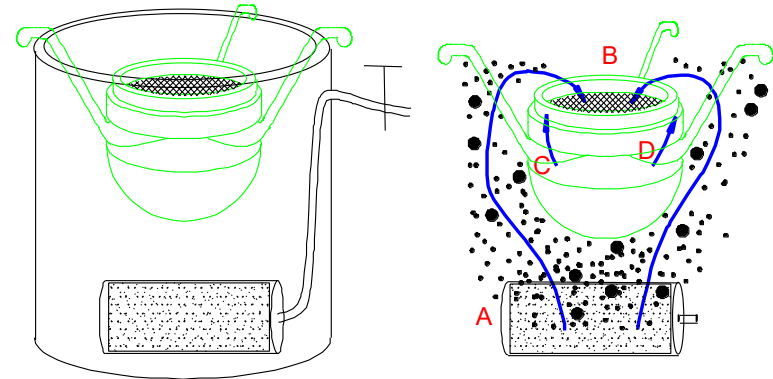


**BSK1 brain slice keeper (above right) and purpose designed holder BSKV (bottom left) shown positioned ready for filling with ACSF**

### PROCEDURE



When first placing the BSK1 into the BSKV, any large air pockets are removed from under the net by means of a teat pipette. Saturate the incubating solution with oxygen prior to adding slices at flow rates between 30 and 40ml/min. After about 20 minutes reduce the gas flow rate to around 15 to 30ml/min max with the needle valve supplied with the BSKV. This ensures circulation of fluid over the top and downwards towards the net. Add slices to the surface of the nylon netting and maintain the incubating fluid to about 5mm above the surface of the upper ring of BSK1. The oxygen flow rate does not need to be increased for the rest of the incubating period. Fast bubbling rates will cause turbulence above the slices and may cause them to move and float away. The typical fluid volume with BSK1 with a BSKV is 220ml.



### SCHEMATIC ARRANGEMENT

**LEFT: BSK1 hooked into the holder BSKV.**

**RIGHT: Oxygen bubbles rising from the air stone A induce circulation of ACSF to the top ring B holding brain slices on the netting. Circulation continues down on to the slices preventing movement and then out via an overhanging space above the domed deflector at C and D. The deflector prevents bubbles from getting on the underside of the net carrying brain slices.**

### TEMPERATURE CONTROL

It is possible to submerge the BSKV into a water bath set to the desired temperature. The heated water bath fill level should be about 15mm below the fill level of the BSKV to prevent floating and instability. Bubbling within the BSKV ensures circulation and uniform temperature of the incubating media around the slices. The three support legs on the side of the BSKV allow weighted rings to be used to anchor the BSKV in water baths.

### MAINTENANCE

Alcohol should never be used on the slice keeper for cleaning purposes even at low concentrations because it de-hydrates and produces hair-line cracks in acrylic plastics. Do not autoclave the BSK1 as the heat cycle can lead to stress cracking of the acrylic.

A laboratory detergent which completely rinses out should be used, however REMOVE THE AIR STONE BUBBLER FIRST as it will take a very long time to remove even these special detergents. The acrylic component can be cleaned with special laboratory detergents such as \*Micro-90™ which completely rinses out. Heavy deposits of salts should be washed out with distilled water overnight and carbonate salts treated with mild acids such as citric acid. The most common contaminant is fungal growth, this can be avoided by washing out with distilled water and drying out completely at the end of each day. Hydrogen peroxide made up of 10% solution from stock 20Vols is also an effective cleaning agent.