

## PELCO<sup>®</sup> Microwave Vacuum Chamber

Product No. 3435

The Microwave Vacuum Chamber is designed for use inside all PELCO<sup>®</sup> Microwave Tissue Processors.

- Made of chemically resistant, microwave-transparent materials and designed for vacuums down to 20" of Hg and temperatures up to 70° C.
- Improves ultrastructural preservation during microwave-assisted chemical fixation. Reduces fixation times by up to 90% when compared to conventional processing protocols.
- Reduces resin infiltration times by 99% compared to conventional processing and 85% when compared to established microwave protocols.

The Microwave Vacuum Chamber is made up of the following components:

- Top Plate with ¼" barb fitting and compression fitting with two caps. One cap has no hole and is used when the temperature probe is not inserted through the plate. The other cap has a hole for the temperature probe.
- Glass cylinder with two L-gaskets attached.
- Base Plate

It is supplied with an internal vacuum hose, O-Clamp and an external vacuum hose with nylon clamps (not shown).

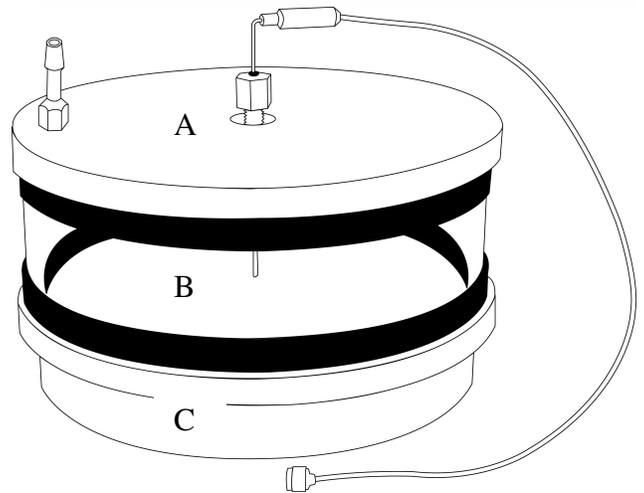


Fig 1: 3435 shown with Temperature Probe



**Warning: Never use the nylon clamps inside the microwave chamber as they may melt and/or burn.**

When unpacking the vacuum chamber, make sure that all the individual pieces are there. The chamber is designed for use with the standard temperature probe supplied with the PELCO<sup>®</sup> Microwave Systems as well as the PTFE-coated probe (Prod. No. 36145-T) supplied with the PELCO BioWave<sup>®</sup>.

### INSTALLATION

- On the 3400 series microwaves, one end of the internal vacuum hose should be attached to the ¼" Barb Fitting and the other end to the unused feedthrough in the rear of the microwave cavity. A vacuum hose attached to the outside feedthrough tube can be connected to a vacuum pump or house vacuum.
- On the BioWave series of microwaves, one end of the internal vacuum hose should be attached to the ¼" Barb Fitting and the other end to the vacuum connector on the right side of the microwave cavity.

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The glass cylinder portion of the PELCO<sup>®</sup> Microwave Vacuum Chamber may also be placed directly on the glass surface of the PELCO ColdSpot<sup>®</sup> (Prod. No. 36115). A small amount of petroleum jelly or vacuum grease should be applied to the bottom gasket of the glass cylinder. It will most likely be necessary to establish a location on the glass surface of the ColdSpot<sup>®</sup> where a vacuum can be easily attained (20" of Hg is recommended for the maximum vacuum). Mark the cylinder location with an indelible marker on the glass surface.



**WARNING:** Never place the glass cylinder portion of the PELCO<sup>®</sup> Microwave Vacuum Chamber directly on the ceramic surface of the microwave cavity. This will result in breakage of the ceramic surface.

## OPERATION

The chamber is tested to  $<1 \times 10^{-1}$  torr. When using vacuum in the microwave for fixation or infiltration (resin or paraffin), the recommended vacuum level is 20" of Hg. The PELCO BioWave<sup>®</sup> is preset to this vacuum level. For other PELCO<sup>®</sup> microwaves an oil-less vacuum/pressure pump is recommended. A vacuum gauge calibrated to 30" of Hg should be used. A vacuum pump is available with these specifications from Ted Pella, Inc. (Prod. No. 3436). The Top Plate of the chamber is fitted with a ¼" Barb Fitting. The PELCO BioWave<sup>®</sup> will automatically vent when the vacuum function is turned off. In all other microwaves the tube will have to be pulled to vent the chamber.

The vacuum chamber is made from microwave transparent materials. The chamber is designed so that vacuum grease is not required during operation. Prior to turning on the vacuum pump, make sure the Top Plate is evenly seated on the L-gaskets of the Glass Cylinder. A slight hand pressure may be applied to the Top Plate to facilitate a vacuum.

For prolonged microwave steps (>40 seconds) the temperature probe—supplied with the PELCO<sup>®</sup> Microwave Tissue Processors—should be used to control heating inside the chamber. Care should be taken when venting the chamber so that fluids do not boil out into the chamber.

We recommend the use of the PELCO<sup>®</sup> Microwave Vacuum Chamber for microwave-assisted chemical fixation and infiltration of resins and paraffin into tissue. All other applications should be carefully researched and tested prior to incorporation as part of a protocol.

## PARTS

Product No.	Description
3435	PELCO <sup>®</sup> Microwave Vacuum Chamber, each Note: Includes all components as shown in Fig. 1 except temperature probe. Temperature probe shown for placement only.
3435-1	Replacement Vacuum Chamber "L" Gaskets, pkg/2
3435-2	Replacement Glass Cylinder, each



**WARNING:** The use of vacuum with solvents is not recommended. Temperature restrictions below 70°C must be used for vacuum-assisted processing steps where water is present and below 37°C where formalin is present, otherwise the liquid will boil and be drawn into the vacuum system. This will severely damage the vacuum components of the BioWave<sup>®</sup> and will prevent a vacuum from being achieved.