



**WORLD
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Reproducible Resistance of Endothelial Tissue

For TEER measurement of epithelial and endothelial cell cultures

Features

- Compatible with original **EVOM** and **EVOM2™** meters
- Adjustable apical electrode height
- Crystal clear glass chamber allows visualization of apical electrode positioning
- New insert holder with 120° tri-supports for three leg inserts
- Three sizes cover a range of well cup sizes from a variety of manufacturers

Benefits

- Stability and reproducibility superior to the **STX2** electrodes to 1% tolerance
- Can be used with 6, 12 or 24 well plates with removable inserts
- Symmetrical electrode pattern disperses test current uniformly
- Tri-leg supports offer mechanical stability and the membrane is held parallel to the electrodes
- Simple test procedure to verify electrode performance

Applications

- TEER measurement for removable culture cup systems using **EVOM2™** meters for endothelial and epithelial cell cultures

Using WPI's **EVOM2™** TEER resistance meter, Endohm chambers provide reproducible resistance measurements of endothelial and epithelial monolayers in culture cups. Transfer cups from their culture wells to the Endohm chamber for measurement rather than using hand-held electrodes. The chamber and the cap each contain a pair of concentric electrodes: a voltage-sensing silver/silver chloride pellet in the center plus an annular current electrode. The height of the top electrode can be adjusted to fit cell culture cups of different manufacture.

Make more precise measurements with Endohms

Endohm's symmetrically opposing circular disc electrodes,



situated above and beneath the membrane, allow a more uniform current density to flow across the membrane than with **STX2** electrodes. The background resistance of a blank insert is reduced from 150 Ω (when using WPI's hand-held **STX2** electrodes) to less than 5 Ω . With Endohm's fixed electrode geometry, variation of readings on a given sample is reduced from 10-30 Ω with **STX2** electrodes to 1-2 Ω . Compared with other resistance measurement methods, Endohm with **EVOM2™** offers a much more convenient and economic solution to "leaky tissue" measurement. Because of the uniform density of the AC square wave current from **EVOM2™**, errors owing to electrode polarization or membrane capacitance are largely negated. Endohm together with **EVOM2™** offers the most accurate and economical endothelial ohmmeter now available. To date, cups from Corning, Millipore, Nunc, Greiner and BD Falcon have been tested. Endohm chambers may be sterilized with EtO, alcohol or a bactericide; not autoclavable.

References

Srinivasan, B., Kolli, A. R., Esch, M. B., Abaci, H. E., Shuler, M. L., & Hickman, J. J. (2015). TEER measurement techniques for in vitro barrier model systems. *Journal of Laboratory Automation*, 20(2), 107-26. <http://doi.org/10.1177/2211068214561025>



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Full list of
inserts online.
[www.wpiinc.com/
endohm](http://www.wpiinc.com/endohm)

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ENDOHM-24 COMPATIBILITY CHART

Corning	Millipore		Pore Size (µm)
3407		Polycarbonate	0.4
3801		Polycarbonate	0.4
3802		Polycarbonate	3.0
3412	PIHT30R48*	Polycarbonate	0.4
3414		Polycarbonate	3.0
	PITT03050	Polycarbonate	3.0
3428		Polycarbonate	8.0
3450		Polyester	0.4
3452		Polyester	3.0
3491		Collagen	0.4
3492		Collagen	3.0
	PICMORG50	Organotypic Insert	0.4
	PIHA03050	HA Insert	0.45
	PIHP03050	PCF Insert	0.4
	PICM03050	HA mixed cellulose esters	0.4
	PIHT30R48*	PET Insert	0.4
	PIRP30R48*	PET Insert	1.0
	PISP30R48*	PET Insert	3.0
	PIMP30R48*	PET Insert	5.0
	PIEP30R48*	PET Insert	8

ENDOHM-6 COMPATIBILITY CHART

Corning	Millipore	Membrane Diameter (mm)	Growth Surface Area (cm ²)	Membrane Pore Size (µm)
3470		6.5	0.33	0.4
3472	PITP01250	6.5	0.33	3
3413	PCF Insert	6.5	0.33	0.4
3415	PITP 01250	6.5	0.33	3
3421	PCF Insert	6.5	0.33	5
3422	PIEP 01250	6.5	0.33	8
	PCF Insert			
3495	PISP12R48*	6.5	0.33	0.4
	PIHT12R48*	6.5	0.33	0.4
	PET Insert			
	PIHA012 50 (HA Insert)	6.5	0.33	0.45
	PICM012 50 (CM Insert)	6.5	0.33	0.4
3496	PISP12R48*	6.5	0.33	3
	PET Insert			
	PIRP12R48*	6.5	0.33	1
	PET Insert			
	PIMP12R48*	6.5	0.33	5
	PET Insert			
	PIEP12R48*	6.5	0.33	8
	PET Insert			
	PIXP01250	6.5	0.33	12
	PCF Insert			
	PITT01250			1.0
	PIHP 01250			3.0

* Inserts with tri-leg supports

ENDOHM-12 COMPATIBILITY CHART

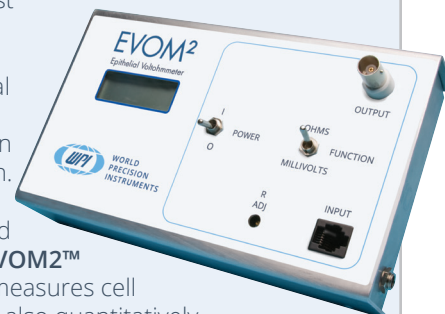
Corning	Millipore	Membrane Diameter (mm)	Growth Surface Area (cm ²)	Membrane Pore Size (µm)
3401		12	1.12	0.4
3402	PITP01250	12	1.12	3.0
3403	PITT01250	12	1.12	3.0
3493		12	1.12	0.4
3494		12	1.12	3
3460	PIHT15R48*	12	1.12	0.4
	PET Insert			
	PIRP15R48*	12	1.12	1
	PET Insert			
3462	PISP15R48*	12	1.12	3
	PET Insert			
	PIMP15R48*	12	1.12	5
	PET Insert			
	PIEP30R48*			
	PIEP15R48*	12	1.12	8
	PIEP15R48*			
	PET Insert			

Epithelial Volt/Ohm (TEER) Meter

Non-destructive measurement of epithelial monolayer confluence in 2D cell cultures

The **EVOM** was the first instrument designed specifically to perform routine Trans Epithelial Electrical Resistance (TEER) measurement in tissue culture research.

EVOM2™ is the next generation, redesigned for ease of use. The **EVOM2™** not only qualitatively measures cell monolayer health, but also quantitatively measures cellular confluence. The unique electronic circuit of the EVOM2™ and the included **STX2** electrode detect the confluence of the cellular monolayer. When combined with WPI's Endohm chamber, the **EVOM2™** can also be used to perform more accurate quantitative measurements or lower resistance measurements like transendothelial electrical resistance measurements.



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