

# Technical Note

## Comparison of incubator space usage between Greiner Bio-One CELLdisc™ and rectangular multilayer devices

The aim of mass cell culture is to produce large quantities of cells e.g. for industrial or clinical applications. Users can choose from a variety of different disposables and concepts. Multiple factors must be evaluated to minimize the cost and maximize the efficiency of such a scale up process. When multilayer devices such as the Greiner Bio-One CELLdisc™ are used, not only growth area and number of cells per device should be considered but also the effective usage of the given incubator space.

The innovative CELLdisc™ with its ergonomic round design differs from the current rectangular devices on the market. Due to their dimensions and shape, rectangular devices imply optimal usage of a cubic space like an incubator. However, it has to be taken into account that length and width of such systems do not directly correlate with the dimensions of standard incubators. This disparity in measurements leaves a large amount of space unused. Furthermore, it is important that rectangular devices are not positioned closely next to each other in order to assure equal thermal distribution.

The CELLdisc™ does not require additional space to ensure thermal equilibration even when the devices are in close proximity due to its round design. (see Fig. 1b). With this fact and the 40% higher surface/volume ratio than standard competitive systems, the utilization of incubator space is much better for CELLdisc™ than for rectangular devices (see Table 1).

Table 1: Utilization of incubator space - exemplary calculation of multilayer devices with comparable dimensions.

	CELLdisc™ 16 layers	Competitor A 10 layers, rectangular form	Competitor B 10 layers, rectangular form (high density version)
Dimensions (L x W x H incl. screw cap)	ø 20 cm, H 22 cm	33 cm x 20 cm x 20.5 cm	33 cm x 23 cm x 21 cm
Growth surface (device)	4,000 cm <sup>2</sup>	6,360 cm <sup>2</sup>	8,216 cm <sup>2</sup>
Max. devices / shelf	6	2	2
Max. devices / incubator	12	4	4
Growth surface (incubator load)	12 x 4,000 = 48,000 cm <sup>2</sup>	4 x 6,360 = 25,440 cm <sup>2</sup>	4 x 8,216 = 32,864 cm <sup>2</sup>
Utilization (as compared to CELLdisc™)	100 %	53 %	68.47 %



Fig. 1: Standard incubator, e.g. HeraCell 240 (Thermo Fisher Scientific) Incubator size internal dimensions: W 56 cm, H: 67 cm

Fig. 1a: Front view of the incubator:

- 1) Top shelf: Rectangular multilayer devices
- 2) Lower shelf: CELLdisc™

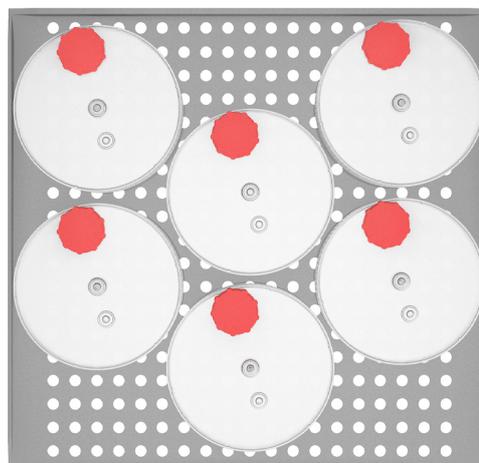


Fig. 1b: Cross section of the incubator.

Optimal positioning of CELLdisc™ and utilization of incubator space.



Ordering information of the CELLdisc™ system on the reverse side

# Ordering Information

Order online now: [www.gbo.com](http://www.gbo.com)

## CELLdisc™

Order no.	Layers	Surface treatment	Surface [cm <sup>2</sup> ]	Max. working volume [ml]	Ø [mm]	Cap colour	Sterility SAL 10 <sup>-6</sup>	Quantity per bag	Quantity per case
678101	1	TC	250	70	200	● red	x	1	8
678104	4	TC	1,000	280	200	● red	x	1	4
678904	4	Adv. TC	1,000	280	200	● blue	x	1	4
678108	8	TC	2,000	560	200	● red	x	1	3
678908	8	Adv. TC	2,000	560	200	● blue	x	1	3
678116	16	TC	4,000	1,120	200	● red	x	1	2
678916	16	Adv. TC	4,000	1,120	200	● blue	x	1	2
678140	40	TC	10,000	2,800	200	● red	x	1	1
678940	40	Adv. TC	10,000	2,800	200	● blue	x	1	1

## Accessories

Order no.	Product description	Quantity per bag	Quantity per case
878071	CELLlevator™ Stacking device for easy and secure stacking of two CELLdisc™ devices	1	9
878074	CELLhandle™ Gripper for secure, easy transportation of large-sized CELLdisc™ formats	1	1
878075	CELLring™ Levelling ring compensating for surface irregularities (e.g. working bench / incubator)	1	3



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