



TPP Tissue Culture Test Plate Dimensions and Measurements



TPP tissue culture test plates have a uniform base area in accordance with the recommendations of the American National Standards Institute (ANSI 1-2004).

Material	Polystyrene
Temperature range	-40°C - +70°C
Autoclavable	-
Expiry Date	6 years from date of production
SAL	10^{-3} (ISO 11137) / 10^{-6} (Triple Bagged 3-B)
Endotoxins	< 0.06 EU/mL

Instructions

TPP tissue culture test plates are compatible with standard absorbance plate readers and cell imaging systems.

For instruments that do not include TPP plates in their predefined plate library, the plate dimensions can be manually entered into the instrument software.

Important:

Do not use plate dimensions from other manufacturers, as precisely positioning and alignment are essential for accurate measurements.

For cell imaging systems, correct focusing of the integrated microscope depends on the plate bottom thickness (dimension G). Ensure that the correct value is entered into the instrument software.

If you require assistance with the configuration, please contact the instrument manufacturer's technical support and provide this datasheet including the plate dimensions and technical drawings.



Advice and Recommendations

TPP tissue culture plates can be used for optical measurements at wavelengths above 300 nm. However, users should verify the suitability of the plates for their specific measurement conditions.

TPP tissue culture plates are not suitable for luminescence-based measurements.

Protein Quantification Assays	Bradford, Lowry, BCA
Cell Viability Assays	MTT, WST, XTT
Microbial Growth Assay	OD 600

Media volume in adherent cell cultures

- 0.2 - 0.5 mL per cm² growth area. This corresponds to a medium height of 2 - 5 mm ^[1]

Medium Volume and Oxygen Transfer

The medium height, and therefore the volume in the culture vessel, is a critical factor for oxygen supply to cells and directly affects the oxygen transfer rate (OTR) (Gstraunthaler et al., 1999).

The medium volume and cultivation time should be adjusted according to the requirements of the specific cell line and application.

Absorbance Measurements

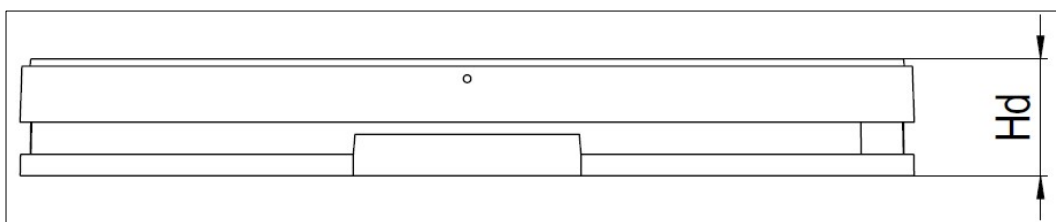
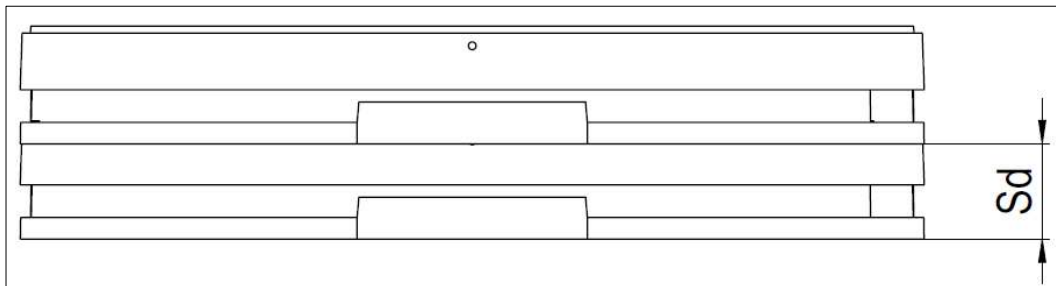
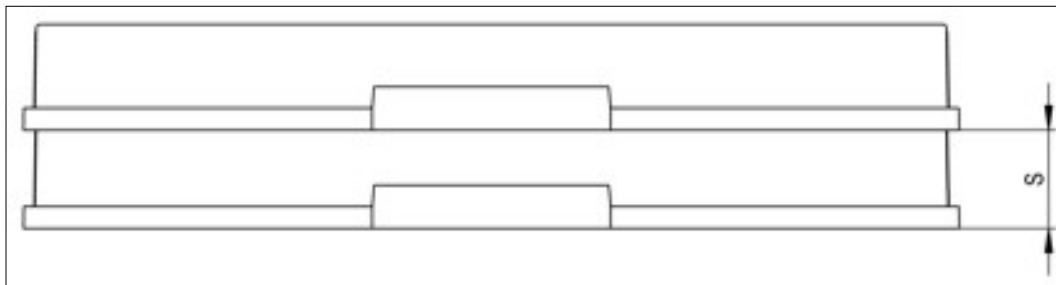
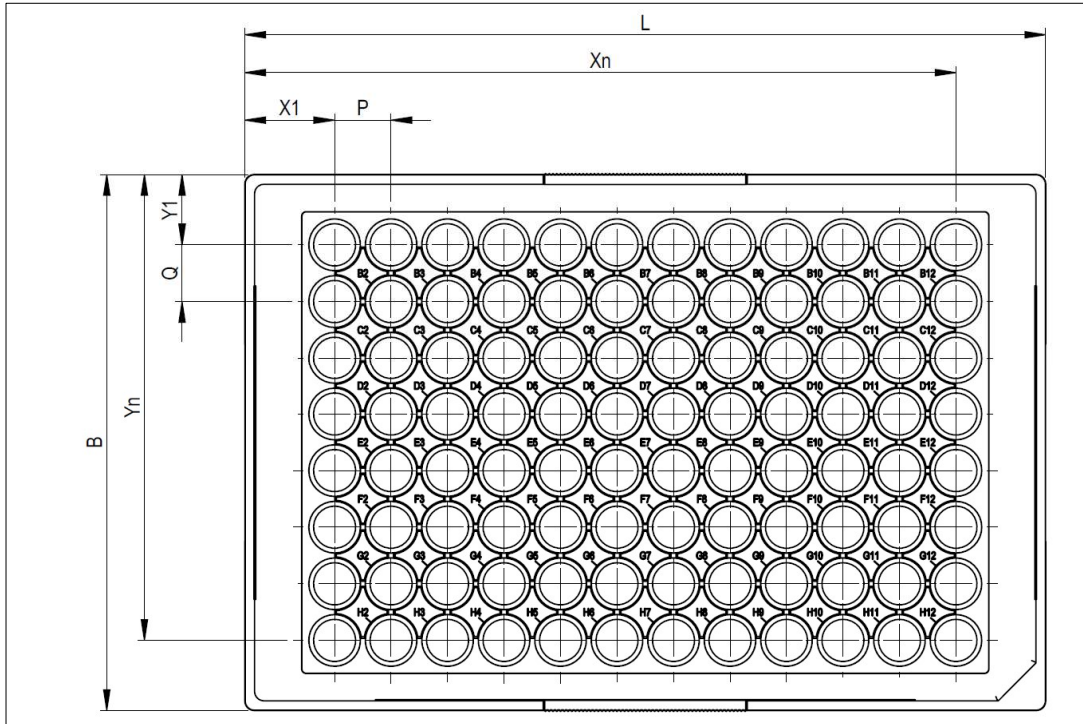
In absorbance-based assays, measurements are typically performed through the well bottom.

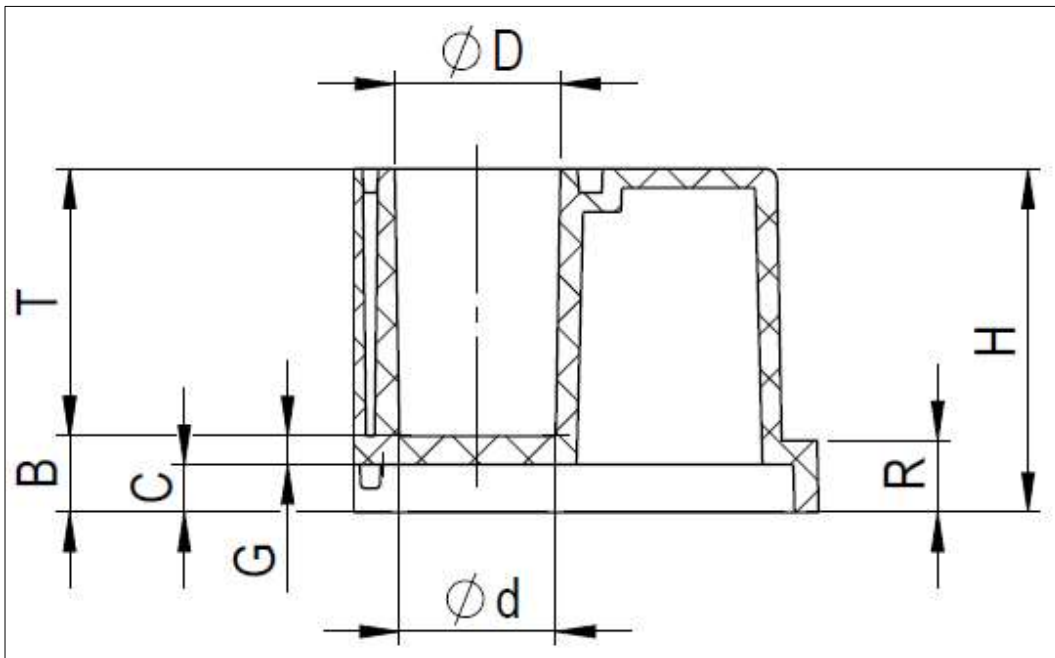
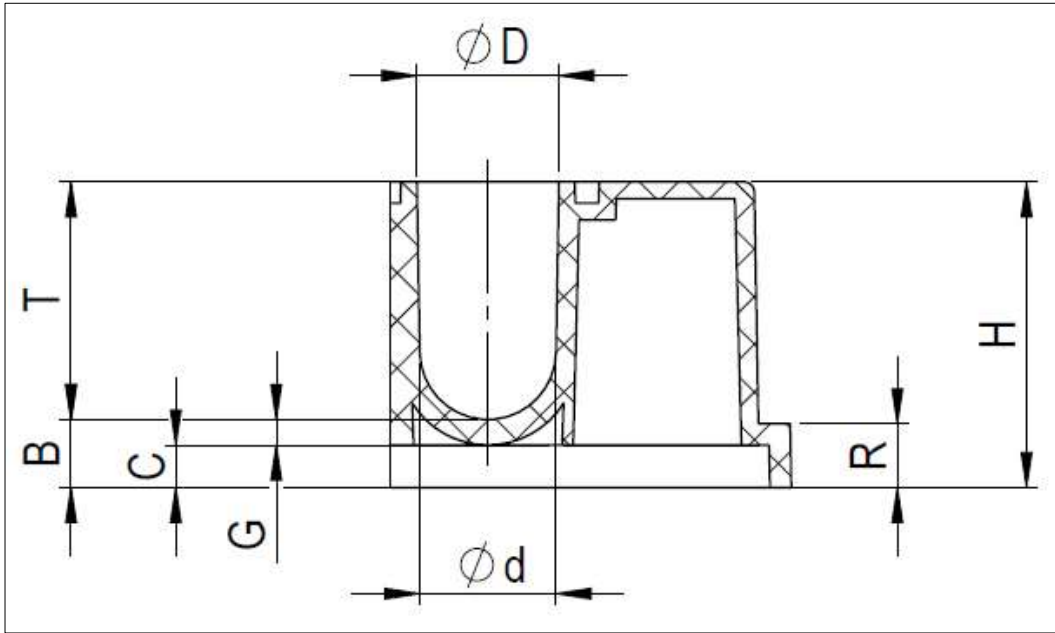
The following factors may influence the measurement:

- Sample volume in the well
- Well bottom geometry (e.g., flat, conical, or round bottom)
- Meniscus formation at the liquid surface

These factors directly affect the optical path length of the measurement beam within the well. Since absorbance is proportional to the path length, variations in these parameters may influence the measurement results.

For this reason, TPP tissue culture plates with flat bottoms are better suited for absorbance measurements, as they provide a more consistent optical path length.







Measurements		92096	92097
Well mm		96	96
L	Length	127.8	127.8
X1	Left well position A1	14.4	14.4
Y1	Upper well position A1	11.24	11.24
P	Horizontal well to well distance	9.0	9.0
Q	Vertical well to well distance	9.0	9.0
B	Width	85.5	85.5
Xn	Right well position	113.4	113.4
Yn	Lower well position	74.24	74.24

Plate Height mm			
H	Plate without lid	14.4	14.4
Hd	Plate with lid	16.7	16.7
	Tolerance	±0.1	±0.1
S	Stack height without cover	13.4	13.4
Sd	Stack height with lid	15.7	15.7
R	Skirt	3.0	3.0
G	Thickness bottom	1.2	1.2

Well Geometry mm			
∅D	Diameter top	6.9	6.7
∅d	Diameter ground	6.6	6.4
T	Depth	11.1	11.1
B	Bottom from plate ground	3.3	3.3
C	Distance bottom side well to plate support	2.1	2.1

Additional Details			
Bottom form:		Flat	Round
Working volume µL		70-200	70-200
Working volume mL		0.07-0.2	0.07-0.2
Max well volume mL		0.38	0.32
Growth area cm ²		0.342	0.965



	Measurements	92006	92012	92024	92048
	Well mm	6	12	24	48
L	Length	127.8	127.8	127.8	127.8
X1	Left well position	24.4	26.55	15.4	18.4
Y1	Upper well position	24.0	17.9	14.85	10.25
P	Horizontal distance well to well	37.5	24.9	18.6	13.0
Q	Vertical distance well to well	37.5	24.9	18.6	13.0
B	Width	85.5	85.5	85.5	85.5
Xn	Right well position	99.5	101.25	108.4	109.4
Yn	Lower well position	61.5	67.65	70.65	75.25

	Plate Height mm				
H	Plate without lid	20.2	20.2	20.2	20.2
Hd	Plate with lid	22.4	22.4	22.4	22.4
	Tolerance	±0.1	±0.1	±0.1	±0.1
S	Stack height without cover	19.2	19.2	19.2	19.2
Sd	Stack height with cover	21.4	21.4	21.4	21.4
R	Skirt	8.8	8.8	8.8	8.8
G	Thickness bottom	1.35	1.5	1.35	1.35

	Well Geometry mm				
∅D	Diameter top	34.5	22.2	16.2	11.2
∅d	Diameter ground	33.9	21.0	15.4	10.6
T	Depth	17.2	16.95	17.1	17.1
B	Bottom from plate ground	3.1	3.25	3.1	3.1
C	Distance bottom side well to plate support	1.75	1.75	1.75	1.75

	Additional Details				
	Bottom form:	Flat	Flat	Flat	Flat
	Working volume mL	1.8-4.5	0.7-1.7	0.4-0.9	0.2-0.4
	Max well volume in mL	15.52	5.87	3.19	1.51
	Growth area cm ²	9.026	3.464	1.863	0.882



Literature

[1] Amanda Capes-Davis, R. Ian Freshney (2010) Freshney's Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications (8th Ed.) - Wiley (p.180)

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