

Sensing Lid Selection Guide

JANUARY 2024



Overview

Lucid has transitioned to a new lid design with a number of improvements. These lids fit a wider range of culture plates than the previous generation of lids. While the previous lid catalog numbers were based on a specific plate type (Nunc 167008 or Falcon 353072), the new lid catalog numbers are based on probe length. This length will determine the clearance between the probe tips and the bottom of the wells (thus varies based on the exact culture plate). Additionally, these lids support a wider range of custom setups for 3D cell model systems such as tissue slices, organoids and gels.

Naming Convention

The new catalog number naming convention is:

NSXX-MMMA

Where:

NS - orientation of probes to interface with 96-well plate centers, i.e 9 mm spacing between wells

XX - 32-channel or 96-channel

MMM - probe length; measured from the bottom surface of the sensing lid. i.e. 101 represents a maximum probe length of 10.1 mm

A - model identifier

Current Lid Models

Sensing lids are currently available in 3 different probe lengths - 9.4, 10.1, and 10.8 mm. The corresponding model code suffixes are 094A, 101A, and 108A, respectively.

32-Channel

NS32-094A

NS32-101A

NS32-108A

96-Channel

NS96-094A

NS96-101A

NS96-108A

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Transition Table

Name	Old Catalog Number	New Catalog Number
Standard Lid - Falcon	RL-NS32-F	NS32-101A
Standard Lid - Nunc	RL-NS32-N	NS32-108A

Probe Depth Calculation

Each sensing lid is composed of two layers. The bottom layer rests on top of the cell culture plate to create a cover and minimize evaporation. The probes are embedded in the top layer and extend into the bottom layer of the lid. During normal operation, Resipher controls the height of the top layer, along with the probes, thus moving them towards and away from the well bottoms.

To select the appropriate lid version, one must know the depth of the corresponding well plate. This depth is typically between 10 mm to 13 mm and can be found on the datasheet provided by the plate manufacturer. The key dimension is the “well depth” - the distance from the plate's top plane to the bottom of the wells. The probe length specified by the lid catalog number represents the furthest that the probes will extend into the wells when the device is reset. Subtracting this sensing lid probe length from the well depth gives the nominal resting height of the probe tip, i.e. the distance between the well bottom and the lowest possible position of the probe tip. If this number is near zero or negative, the probes will impact the bottom of the well. From physical measurements, we find that the “well depth” dimension provided in manufacturer datasheets can vary by as much as +/- 300 μ m.

For typical monolayer cell culture experiments, Lucid recommends selecting a probe length that is 500 μ m shorter than the well depth. For example, Falcon 353072 has a well depth of 10.76 mm and can be used with the 101A sensing lids. This ensures that at their deepest point, the probes will not touch or impact the cells at the bottom of the wells. Probe height, as reported in Lucid Lab, assumes the resting (reset) position of the probes is 500 μ m above the bottom of the cell culture wells.

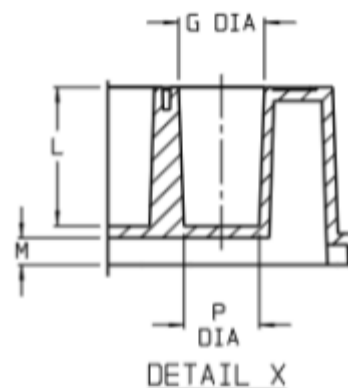
For tissue slices, organoids and other 3D culture setup, the culture thickness must be accounted for to ensure there is enough clearance of the probes above the tissue. Please reach out to us for further discussions and optimizations, lab@lucidsci.com.

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CATALOG NUMBER.....:	SEE BELOW	
NOM. CAP. (ul).....:	400	
MATERIAL.....:	PS	
	INCH	MM
A (BASE LENGTH).....:	5.030	127.76
B (BASE WIDTH).....:	3.365	85.47
C (TOP LENGTH).....:	4.85	123.3
D (TOP WIDTH).....:	3.20	81.2
F (OVERALL HEIGHT).....:	0.57	14.4
G (TOP OF WELL DIA).....:	0.27	7.0
H (A-1 LOCATION) (X).....:	0.57	14.4
J (A-1 LOCATION) (Y).....:	0.44	11.2
K (WELL-TO-WELL SPACING)....:	0.35	9.0
L (WELL DEPTH).....:	0.45	11.3
M (BOTTOM OF WELL DISTANCE):	.09	2.2
N (FLANGE HEIGHT).....:	.10	2.5
P (BOTTOM OF WELL DIA).....:	.24	6.1



Nunc Dimension Specifications for Catalog # 243656. The dimension labeled “L (WELL DEPTH)” specifies a well depth of 11.3 mm.

Selected Plate Dimensions

Brand	Catalog Number		Nominal Well Depth (mm)
Nunc	167008		11.40
Nunc	243656		11.30
Falcon	353072		10.76
Greiner	655073		10.90
Costar	3596		10.76

Please reach us at lab@lucidsci.com for technical discussions on lid selection.