

Counting grids

The types of counting chambers differ in counting grids and the depths of the chambers. Orthogonal lines form grids which become visible by magnifying them with a microscope. The grid of a counting chamber is engraved into the surface of its base.

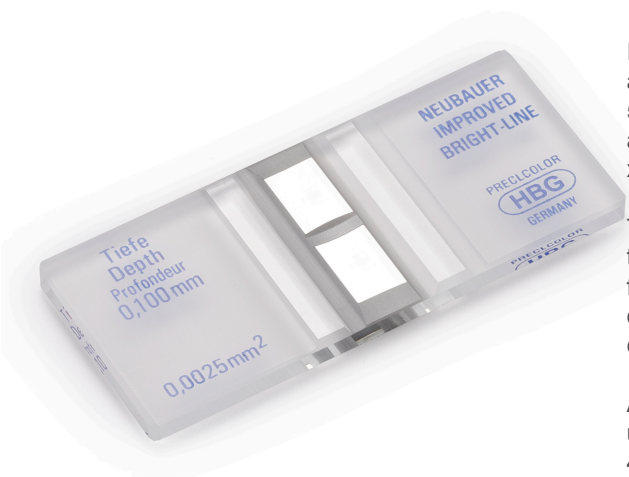
Neubauer-improved

The Neubauer-improved counting chamber has become the most popular one.

Its standard depth is 0.1 mm. The grid consists of 3 x 3 large squares with areas of 1 mm² each. The large square in the center is subdivided into 5 x 5 group squares with edges of 0.2 mm length each. These group squares are again subdivided into sixteen small squares of an area of each 0.05 mm x 0.05 mm = 0.0025 mm².

The lines limiting the large squares and the group squares are threefold with the central line as the actual dimension lines. The inner and outer auxiliary lines facilitate counting. They assist determining whether cells near or on the border lines are to be counted as within the area or omitted as outside of the counting area.

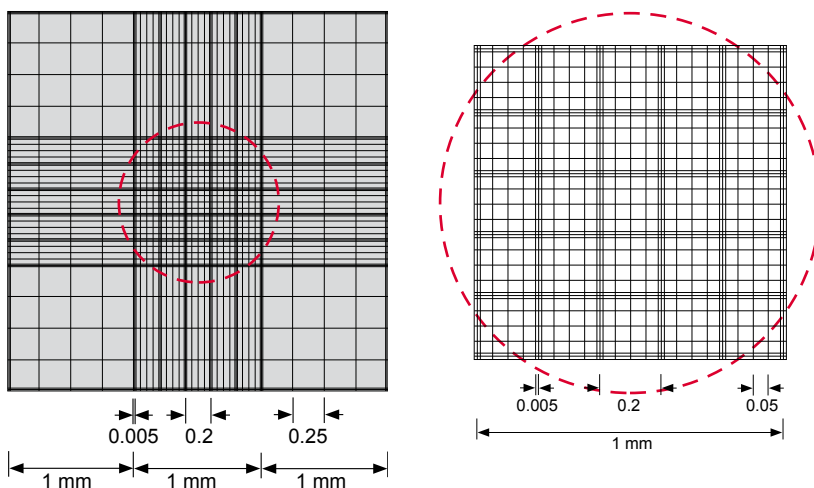
As the counting chamber comes with squares of different sizes it can be used for counting different types of cells. E.g. leucocytes are counted in the 4 large squares at the corners of the grid and for counting erythrocytes at least 5 group squares are normally used.



Neubauer-improved with dark lines

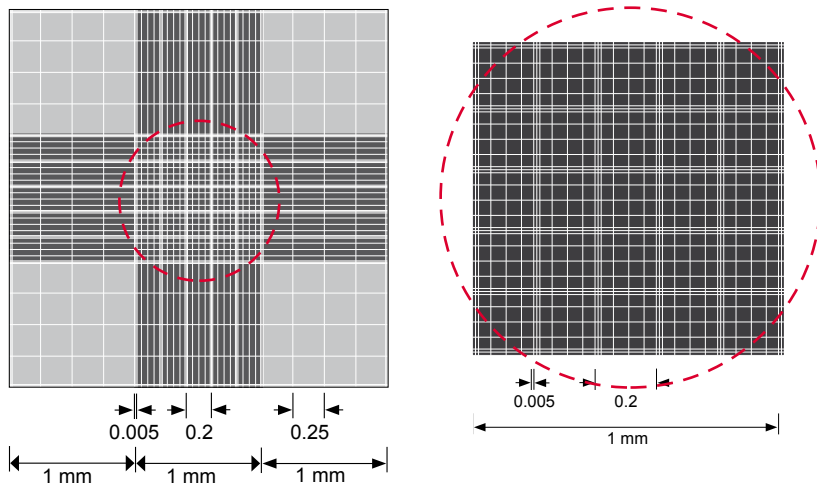
Dark line:

The grids of counting chambers with dark lines are engraved into the glass surface of the base of the chamber. When looking through a microscope these lines appear to be dark.



Depth = 0.1 mm	□	mm x mm / 1 □	mm ² / 1 □	mm ³ = µl
Total net ruling	1	3 x 3	9	0.9
Large squares per grid	9	1 x 1	1	0.1
Group squares per large square	25	0.2 x 0.2	0.04	0.004
Small squares per group square	16	0.05 x 0.05	0.0025	0.00025

Neubauer-improved with bright lines



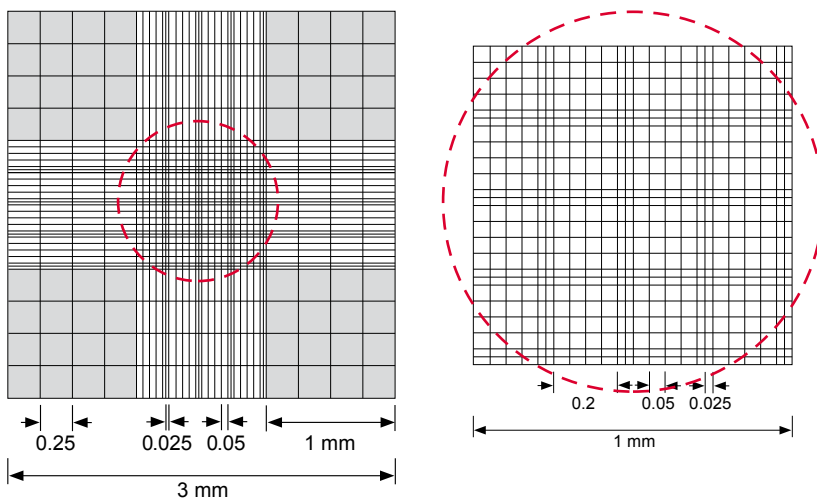
Bright line:

The grids of counting chambers with bright lines are engraved into a thin, vapour-deposited metal film. The bright lines contrast well with the darker, metallic background which facilitates the evaluation.

Depth = 0.1 mm

	□	mm x mm / 1 □	mm ² / 1 □	mm ³ = µl
Total net ruling	1	3 x 3	9	0.9
Large squares per grid	9	1 x 1	1	0.1
Group squares per large square	25	0.2 x 0.2	0.04	0.004
Small squares per group square	16	0.05 x 0.05	0.0025	0.00025

Neubauer



The depth of the Neubauer chamber is 0.1 mm.

Its net ruling covers 3 mm x 3 mm in total and consists of 9 large squares of 1 mm each side length.

The central large square is subdivided in 4 x 4 group squares of 0.2 x 0.2 mm². Triple lines in a distance of 0.025 mm separate the group squares from each other. Each group square is subdivided in 16 small squares of 0.05 mm side length.

Depth = 0.1 mm

	□	mm x mm / 1 □	mm ² / 1 □	mm ³ = µl
Total net ruling	1	3 x 3	9	0.9
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