

Counting Chambers

Counting chambers serve to determine the number of particles per volume unit of a liquid. The particles (e.g., leucocytes, erythrocytes, thrombocytes, bacteria, fungus spores, pollen) are visually counted under a microscope. BLAUBRAND® counting chambers are precision measuring instruments.

Counting chamber with spring clips



Counting chamber without spring clips



BRAND counting chamber and haemocytometer cover glasses are CE-marked according to IVD-Directive 98/79 EC.

Description of functional characteristics

The microscope-slide-sized base plate is made of special optical glass. Milled grooves divide the surface into two large fields (outside) and three narrow ridges (inside). The two outer fields are for inscriptions, whereas the ridges are ground and polished. The central ridge (= chamber bottom) has two engraved sets of rulings for counting, separated by a groove. Generally the chamber

bottom on the central ridge is 0.1 mm lower (= chamber depth) than the two outer ridges. Hence, when a cover glass is placed on top, there is a gap of 0.1 mm between the glass and the central ridge. The lateral boundaries of the volume to be counted are formed by the imaginary planes projected vertically onto the boundary lines of the ruling.

Equation for particle determination (for general use)

$$\text{Particles per } \mu\text{l volume} = \frac{\text{Counted particles}}{\text{Counted surface (mm}^2\text{)} \cdot \text{Chamber depth (mm)} \cdot \text{Dilution}}$$

Example: Erythrocytes

Chamber: Improved Neubauer

1. Counted particles: 528 erythrocytes

2. Counted surface: 5 group squares, equivalent to 0.2 mm²

3. Chamber depth: 0.1 mm

4. Dilution: 1:200

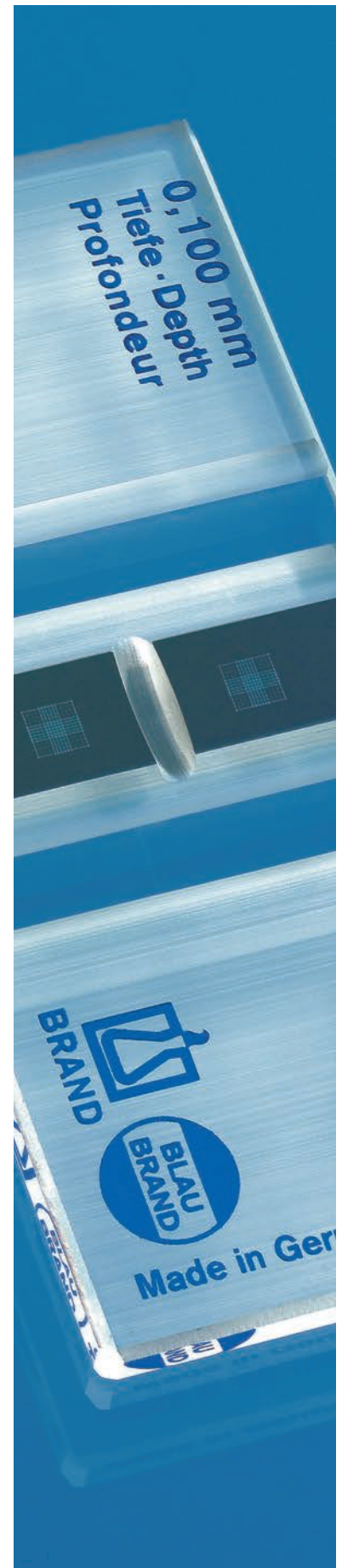
$$\begin{aligned} & \frac{528 \cdot 200}{0.2 \cdot 0.1 \cdot 1} \\ &= 5.28 \cdot 10^6 \text{ ery}/\mu\text{l blood} \\ &= \underline{5.28 \text{ Mio ery}/\mu\text{l blood}} \end{aligned}$$

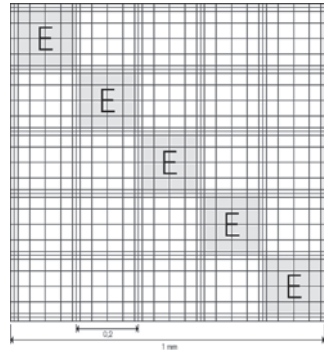
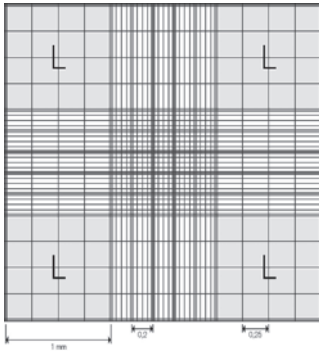
Pack quantities for all counting chambers:

1 Counting chamber, complete with 2 haemocytometer cover glasses, in transparent plastic box.

Cleaning

For cleaning, we recommend the disinfectant cleaner Mucocit®-T (page 313).





Large central square

Description	Chamber depth	Cat. No.
without spring clips	0.1 mm	7178 05
with spring clips	0.1 mm	7178 20

Improved Neubauer

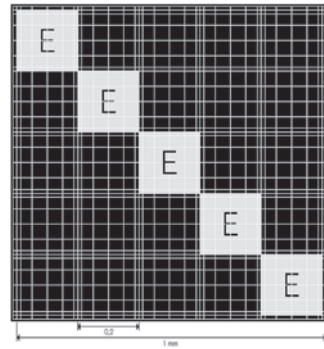
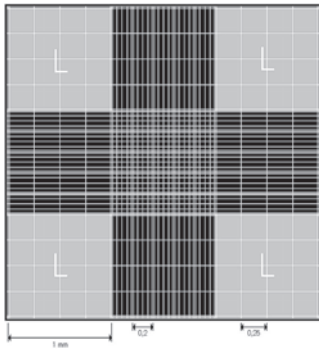
double ruling, with or without spring clips

The ruling shows 9 large squares of 1 mm² each. The four large squares in the corners marked "L" for counting leucocytes are each subdivided into 16 squares with 0.25 mm sides.

The large square in the center is subdivided into 25 group squares of 0.2 mm sides. Each group square consists of 16 mini squares with 0.05 mm sides, each having an area of 0.0025 mm².

The 5 group squares marked "E" are used for counting thrombocytes and erythrocytes.

All group squares have triple boundary lines on each side. The central line is the limiting line and determines whether cells in the marginal area shall be included in the count or not. CE-marked according to IVD-Directive 98/79 EC.



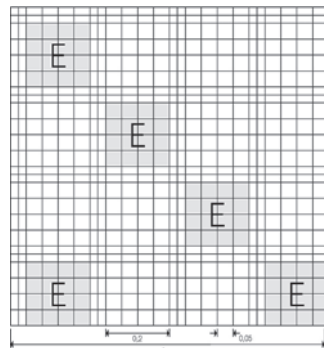
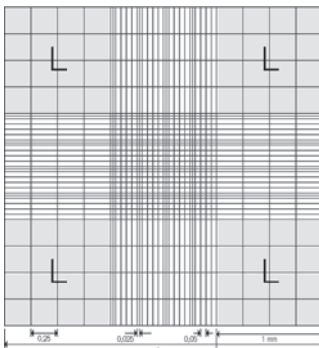
Large central square

Description	Chamber depth	Cat. No.
without spring clips	0.1 mm	7178 10

Improved Neubauer, bright-line

double ruling, without spring clips

Same ruling as Improved Neubauer, but with rhodium-coated chamber bottom. Rulings are engraved into the rhodium layer and appear bright under normal microscope settings. By altering the contrast, the microscope image can be reversed, so that the rulings appear brighter or darker, as required. CE-marked according to IVD-Directive 98/79 EC.



Large central square

Description	Chamber depth	Cat. No.
without spring clips	0.1 mm	7186 05
with spring clips	0.1 mm	7186 20

Neubauer

double ruling, with or without spring clips

The ruling shows 9 large squares of 1 mm² each. The four large squares in the corners marked "L" for counting leucocytes are each subdivided into 16 squares with 0.25 mm sides.

The large square in the center is subdivided into 16 group squares of 0.2 mm sides. Each group square consists of 16 mini squares with 0.05 mm sides, each having an area of 0.0025 mm².

The 5 group squares marked "E" are used for counting thrombocytes and erythrocytes.

Contrary to the more advanced Improved Neubauer counting chambers, the counting area of each group square is limited by the outer one of the triple boundary lines. CE-marked according to IVD-Directive 98/79 EC.

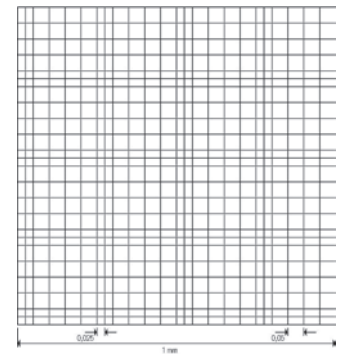
Thoma

double ruling, with or without spring clips

Rulings correspond to the central large square of the Neubauer chamber. The mini squares have an area of 0.0025 mm^2 each. Since the outer large squares are not completed, the Thoma chamber is only used for counting thrombocytes and erythrocytes. CE-marked according to IVD-Directive 98/79 EC.

Haemocytometer cover glasses for counting chambers see page 257.

We recommend in mm: 20 x 26 x 0.4 Haemocytometer cover glasses for all counting chambers in our range (except Fuchs-Rosenthal: size in mm: 24 x 24 x 0.4, Nageotte: size in mm: 22 x 30 x 0.4).



Large central square

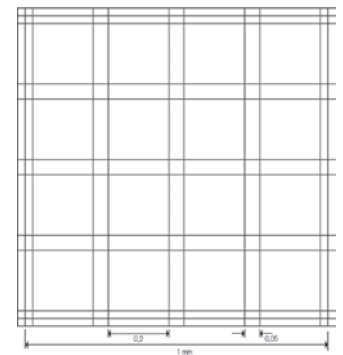
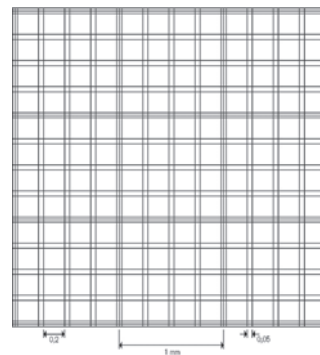
Description	Chamber depth	Cat. No.
without spring clips	0.1 mm	7180 05
with spring clips	0.1 mm	7180 20

Bürker

double ruling, with or without spring clips

The ruling shows 9 large squares of 1 mm^2 each. These are used for counting leucocytes. Each large square is subdivided by double lines (0.05 mm apart) into 16 group squares with 0.2 mm sides. The group squares correspond in size to the Neubauer counting chamber, but have no further subdivisions. They are used for counting thrombocytes and erythrocytes. The double lines form mini squares with an area of 0.0025 mm^2 .

CE-marked according to IVD-Directive 98/79 EC.



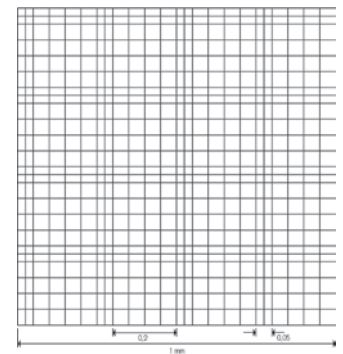
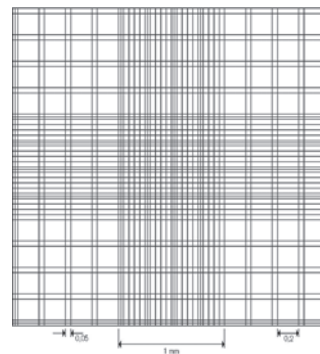
Large central square

Description	Chamber depth	Cat. No.
without spring clips	0.1 mm	7189 05
with spring clips	0.1 mm	7189 20

Bürker-Türk

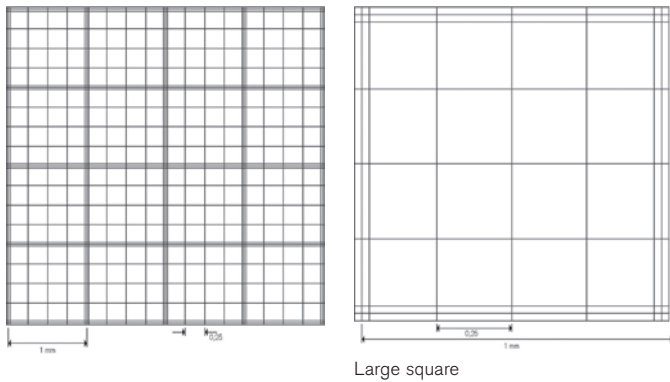
double ruling, with or without spring clips

Combination of the Bürker and Thoma systems. The chamber depth is 0.1 mm. The ruling shows 9 large squares of 1 mm^2 each. The large squares are subdivided into 16 group squares with 0.2 mm sides. In the central large square, each group square is subdivided into 16 mini squares with 0.05 mm sides ($= 0.0025 \text{ mm}^2$). CE-marked according to IVD-Directive 98/79 EC.



Large central square

Description	Chamber depth	Cat. No.
without spring clips	0.1 mm	7195 05
with spring clips	0.1 mm	7195 20

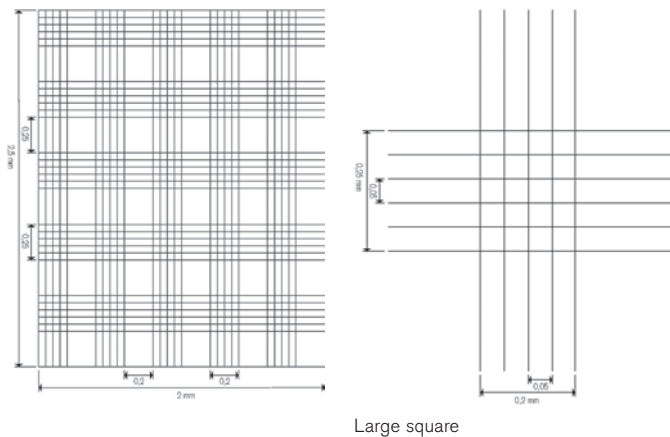


Fuchs-Rosenthal

double ruling, with or without spring clips

The ruling differs from the customary systems for blood cell counts by its large area of 16 mm². The ruling shows 16 large squares of 1 mm². Each large square is subdivided into 16 mini squares with 0.25 mm sides and an area of 0.0625 mm². This chamber is frequently used for counting cells in the cerebrospinal fluid. CE-marked according to IVD-Directive 98/79 EC.

Description	Chamber depth	Cat. No.
without spring clips	0.2 mm	7198 05
with spring clips	0.2 mm	7198 20

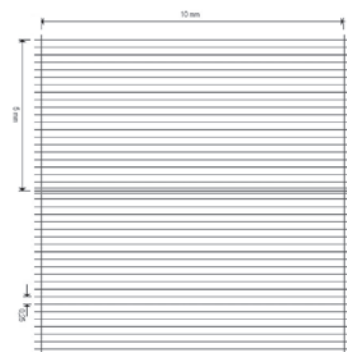


Malassez

double ruling, without spring clips

The ruling is rectangular, covering an area of 5 mm². The large rectangles measure 0.25 x 0.20 = 0.05 mm². They are each subdivided into 20 mini squares with an area of 0.0025 mm². This chamber is commonly used for counting cells in the cerebrospinal fluid, or for counting nematodes. CE-marked according to IVD-Directive 98/79 EC.

Description	Chamber depth	Cat. No.
without spring clips	0.2 mm	7190 05



Nageotte

double ruling, without spring clips

The chamber depth is 0.5 mm. The square area of 100 mm² is subdivided into 40 rectangles with an area of 0.25 x 10 = 2.5 mm² each. This chamber is commonly used for counting cells in the cerebrospinal fluid, or for counting nematodes. CE-marked according to IVD-Directive 98/79 EC.

Description	Chamber depth	Cat. No.
without spring clips	0.5 mm	7213 05