NESMU-DHC-001E (V.2.4)

CE UKCA

C-Chip

INSTRUCTIONS

Disposable Hemocytometer

System Neubauer Improved

DHC-N01

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The information in this manual is described as correctly as possible, but may be changed without prior consent or notification.

Documentation : NESMU-DHC-001E (V.2.4) Date: MAR 2025

Safety Precautions

For analyzing hazardous or potential infectious materials:
- Take necessary precautions
- Handle with care
- Dispose in an appropriate way

Long exposure to solvents will cause the slide to warp.
Xylene and toluene based mounting media should be avoided.
Glycerol, gelatin, and other aqueous-based media are recommended.

Safety Symbols

The safety symbols on the C-Chip (DHC-N01) are intended to inform you of potential danger or a particular caution. Before use, please read and the consult the guide for the symbols and their meanings.

LOT Batch code (Lot Number) — Use by — CE marking

Do not reuse — IVD *In vitro* diagnostic medical device

Consult instructions for use — Manufacturer

US Corporation US Corporation — European Corporation European Corporation

EC REP Authorized representative in the European Community

UK Representative Authorized representative in United Kingdom

NOTE : The C-Chip (DHC-N01) is for **single use** only. **Do not reuse.**
It should be used immediately after unsealing. The warranty on the C-Chip included in the conditions of supply is valid for 24 months from the date of manufacturing. The **expiration date** is indicated on the front side of outer box.

Introduction

The C-Chip (DHC-N01) is a disposable plastic hemocytometer used for manual cell counting. It consists of surface-patterned two enclosed chambers with two ports for sample injection (Fig. 2).

The DHC-N01 grid pattern is identical to Neubauer Improved. It consists of 9 large squres, each measuring 1 x 1 mm, with a depth of 0.1mm. Each large squrare has a total volume of 0.1 mm^3 or 10^{-4} cm^3 (Fig. 1).

The central large square is subdivided into 25 smaller squares with triple lines, each measuring 0.2 mm x 0.2 mm.
Four large squares at each corner are divided into 16 smaller squares, each measuring 0.25 mm x 0.25 mm.

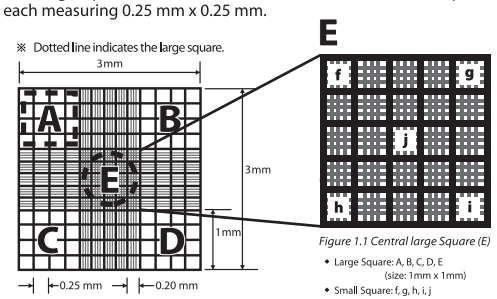


Figure 1.1 Central large Square (E)

Figure 1 Grid pattern

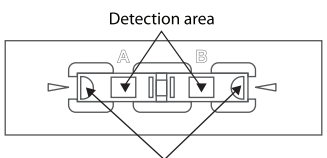


Figure 2 DHC-N01

Counting with C-Chip

A. General Methods

1. Mix the samples well.
2. Load 10 µL of sample into the sample injection area in Fig. 2, so that it fills the chamber by capillary action.
3. Count the cells under the microscope.

Cells per mL = average count per square x dilution factor x volume factor

B. Mammalian cell counting

1. Treat the cell samples with trypsin-EDTA.
2. Carefully remove the supernatant with a pipette tip without disturbing the pellet.
3. Add an appropriate volume of growth media or PBS to dilute to a final concentration of 5 x 10^3 cells/mL to 5 x 10^6 cells/mL.
4. Thoroughly re-suspend the cell pellet with a pipette
5. Check visually if there are any cell clumps or agglomerates.
6. Load 10 µL of sample into the sample injection area in Fig. 2.
7. Count the cells within each of 5 large squares *(A, B, C, D, and E)*.

$$\text{Cells per mL} = \frac{\text{Total cells in 5 large squares}}{5} \times \text{dilution factor} \times 10^4 \text{ (volume factor)}$$

C. Erythrocyte counting (1:200 dilution)

1. Dilute blood using accepted laboratory methods.
2. Load 10 µL of diluted sample into the sample injection area in Fig. 2.
3. Count total erythrocytes in 5 small squares *(f, g, h, i, j)* of the large center square *(E)* (Fig. 1).

$$\text{RBCs per mL} = \frac{\text{Total cells in 5 small squares}}{5} \times 25 \times 200 \text{ (dilution factor)} \times 10^4 \text{ (volume factor)}$$

(total number of small squares in square 'E')

D. Leukocyte counting (1:20 dilution)

1. Dilute blood using accepted laboratory methods.
2. Load 10 µL of diluted sample into the sample injection area in Fig. 2.
3. Count total leukocytes in 4 large squares *(A, B, C, D)* of each corner (Fig. 1).

$$\text{WBCs per mL} = \frac{\text{Total cells in 4 large squares}}{4} \times 20 \text{ (dilution factior)} \times 10^4 \text{ (volumefactor)}$$

Trouble shooting

In case of poor visibility results,

Carefully load samples into the C-Chip in order to prevent the introduction of **air bubbles.**
Observe after removing the dust from samples.
Adjust the focus of the microscope.
Do not rub or touch the pattern.

C-Chip

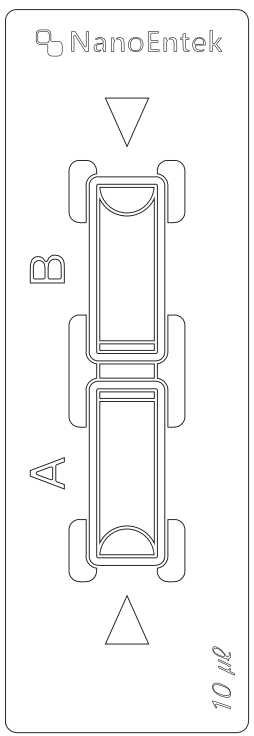
INSTRUCTIONS

Grid pattern of Bürker
DHC-B01

Grid pattern of Bürker-Türk
DHC-B02

Grid pattern of Fuchs-Rosenthal
DHC-F01

Grid pattern of Malassez
DHC-M01



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Grid pattern of Bürker
DHC-B01

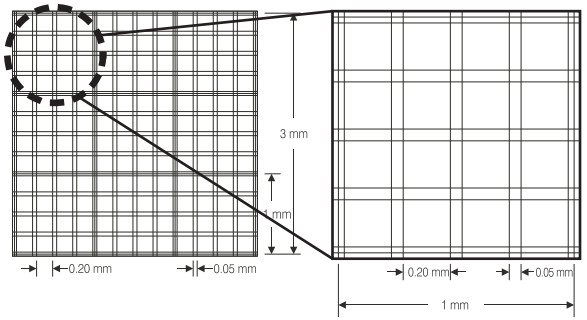
The C-Chip (DHC-B01) grid pattern is identical to Bürker.
It consists of 9 large squres, each measuring 1 x 1 mm, with a depth of 0.1mm. Each large squrare has a total volume of 0.1 mm^3 or 10^{-4} cm^3.

Each of the nine large squares is subdivided into 16 small squares, each measuring 0.2 mm x 0.2 mm. These small squares are the same size as those in the Neubauer grid's central large square, but without any further subdivisions.

Loading volume = 10μL

Cells per mL =
average count per large square x dilution factor x 10^4 (Volume factor)

※ Dotted line indicates the large square.



Grid pattern of DHC-B01

Grid pattern of Bürker-Türk
DHC-B02

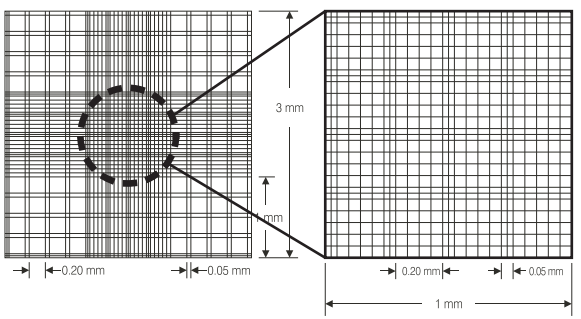
The C-Chip (DHC-B02) grid pattern is identical to Bürker-Türk.
It consists of 9 large squres, each measuring 1 x 1 mm, with a depth of 0.1mm. Each large squrare has a total volume of 0.1 mm^3 or 10^{-4} cm^3.

Each of the nine large squares is divided into 16 smaller squares, each measuring 0.2mm x 0.2mm. Notably, within the central large square, these 16 smaller squares are further divided into 16 mini squares, each measuring 0.05 mm x 0.05 mm (equivalent to 0.0025 mm^2).

Loading volume = 10μL

Cells per mL =
average count per large square x dilution factor x 10^4 (Volume factor)

※ Dotted line indicates the large square.



Grid pattern of DHC-B02

Grid pattern of Fuchs-Rosenthal
DHC-F01

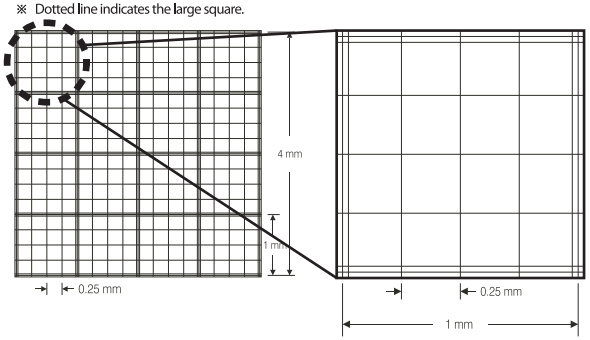
The C-Chip (DHC-F01) grid pattern is identical to Fuchs-Rosenthal.
It consists of 16 large squares, each defined by triple lines. Each large square measures 1 x 1 mm, resulting in a total counting area of 4 x 4 mm.

With a depth of 0.2 mm per chamber, each large square contains a volume of 0.2μL, resulting in a total counting area volume of 3.2μL (equivalent to 3.2 mm^3).

Loading volume = 20μL

Cells per mL =
average count per large square x dilution factor x 5000 (Volume factor)

※ Dotted line indicates the large square.



Grid pattern of DHC-F01

Grid pattern of Malassez
DHC-M01

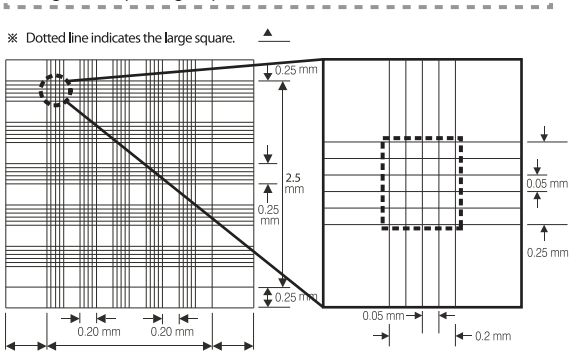
The C-Chip (DHC-M01) grid pattern is identical to Malassez.
It consists of 25 large squres, each measuring 0.2 x 0.25 mm, with a depth of 0.2mm. Each large squrare has a total volume of 0.1 mm^3 or 10^{-5} cm^3.

Each large square is divided into 20 smaller squares, each measuring 0.05 mm x 0.05 mm, with an area of 0.0025 mm^2 per square.

Loading volume = 20μL

Cells per mL =
average count per large square x dilution factor x 10^5 (Volume factor)

※ Dotted line indicates the large square.



Grid pattern of DHC-M01