



# Sample processing

## User manual

MN Bead Tube Holder

MN Bead Tube Holder 5 mL

April 2019 / Rev. 03

## Table of contents

|       |  |    |
|-------|--|----|
| 1     | Contents   | 4  |
| 2     | Product description  | 4  |
| 2.1   | Product specifications                                       | 4  |
| 3     | General remarks  | 5  |
| 3.1   | Reagents, consumables, and equipment to be supplied by user  | 5  |
| 3.2   | Handling, preparation, and storage of starting materials     | 5  |
| 3.3   | Sample type and recommended NucleoSpin® kits                 | 5  |
| 3.4   | Type of bead tubes   | 6  |
| 3.5   | Time and frequency of disruption                             | 7  |
| 3.5.1 | MN Bead Tube Holder  | 7  |
| 3.5.2 | MN Bead Tube Holder 5 mL                                     | 8  |
| 4     | Handling of MN Bead Tube Holder and MN Bead Tube Holder 5 mL | 9  |
| 5     | Cleaning   | 10 |
| 6     | Appendix   | 10 |
| 6.1   | Troubleshooting  | 10 |
| 6.2   | Ordering Information   | 11 |
| 6.3   | Product use restriction / warranty                           | 12 |

# 1 Contents

|                     | MN Bead Tube Holder | MN Bead Tube Holder 5 mL |
|---------------------|---------------------|--------------------------|
| <b>REF</b>          | <b>740469</b>       | <b>740459</b>            |
| MN Bead Tube Holder | 1                   | 1                        |
| User manual         | 1                   | 1                        |

## 2 Product description

The **MN Bead Tube Holder** and **MN Bead Tube Holder 5 mL** are designed to be used in combination with a Vortex-Genie® instrument and a 3-inch platform in order to house up to 12 bead tubes (MN Bead Tube Holder) and 8 bead tubes (MN Bead Tube Holder 5 mL) and to disrupt biological samples for subsequent nucleic acid purification with NucleoSpin® kits.

### 2.1 Product specifications

**Table 1: Product specifications at a glance**

| Parameter       | MN Bead Tube Holder  | MN Bead Tube Holder 5 mL  |
|-----------------|--|---|
| Technology      | High density polyethylene foam, shaped piece                 |   |
| Format          | 138 mm x 110 mm x 25 mm                                      | 138 mm x 120 mm x 35 mm   |
| Sample material | NucleoSpin® Bead Tubes with biological sample for disruption | NucleoSpin® Bead Tubes 5 mL with biological sample for disruption |
| Sample amount   | Up to 12 NucleoSpin® Bead Tubes per run                      | Up to 8 NucleoSpin® Bead Tubes 5 mL per run                       |
| Runtime         | Up to 20 min per run   | Up to 12 min per run  |

## 3 General remarks

### 3.1 Reagents, consumables, and equipment to be supplied by user

Reagents and consumables

- MN Bead Tube Holder: NucleoSpin® Bead Tubes Type A, B, C, D, E, or F
- MN Bead Tube Holder 5 mL: NucleoSpin® Bead Tubes Type A 5 mL
- NucleoSpin® Kit (e.g., NucleoSpin® Soil, NucleoSpin® Microbial DNA, NucleoSpin® DNA Insect , NucleoSpin® DNA Lipid Tissue, NucleoSpin® DNA Stool, NucleoSpin® DNA RapidLyse) or NucleoMag® DNA/RNA Water

Equipment

- Vortex-Genie® 2, Vortex-Genie® 2T, or Digital Vortex-Genie® 2 with 3-inch platform and rubber cover (Scientific Industries)

### 3.2 Handling, preparation, and storage of starting materials

Biological sample material (e.g., soil, stool, microbial culture pellets, insects, tissue) should be handled with care. Local regulations for each individual sample material need to be followed.

In case the sample needs to be stored after collection, appropriate storage-conditions need to be ensured (e.g., freeze preservation at -20 °C or -80 °C).

### 3.3 Sample type and recommended NucleoSpin® kits

- Soil samples  
**NucleoSpin® Soil** (NucleoSpin® Bead Tube Type A)
- Stool samples  
**NucleoSpin® DNA Stool** (NucleoSpin® Bead Tubes Type A)
- Microbial culture pellets of gram positive and gram negative bacteria  
**NucleoSpin® Microbial DNA** (NucleoSpin® Bead Tube Type B)
- Yeast cell culture pellets  
**NucleoSpin® Microbial DNA**  
(with supplement NucleoSpin® Bead Tubes Type C)
- Insects  
**NucleoSpin® DNA Insect** (NucleoSpin® Bead Tube Type D)
- Hard to lyse microbes (e.g., gram positive bacteria) within insect or tissue samples  
**NucleoSpin® DNA Insect** (with supplement NucleoSpin® Bead Tube Type E)
- Hard to process organs (e.g., spleen, lung)  
**NucleoSpin® DNA RapidLyse** (with supplement Bead Tube Type F)
- Water and air filters  
**NucleoMag® DNA/RNA Water** (NucleoSpin® Bead Tubes Type A / NucleoSpin® Bead Tubes Type A 5 mL)

### 3.4 Type of bead tubes

Bead type, disruption time, and frequency/speed must be optimized for a given sample to achieve the maximal yield and quality of nucleic acids.

- NucleoSpin® Bead Tubes Type A (0.6–0.8 mm ceramic beads)  
Recommended for soil, stool and sediment samples (included in NucleoSpin® Soil).
- NucleoSpin® Bead Tubes Type A 5 mL (0.6–0.8 mm ceramic beads)  
Recommended for large round filters.
- NucleoSpin® Bead Tubes Type B (40–400 µm glass beads)  
Recommended for gram positive and -negative bacteria (included in NucleoSpin® Microbial DNA).
- NucleoSpin® Bead Tubes Type C (1–3 mm corundum)  
Recommended for yeast.
- NucleoSpin® Bead Tubes Type D (3 mm steel balls)  
Recommended for insect samples (included in the NucleoSpin® DNA Insect kit).
- NucleoSpin® Bead Tubes Type E (glass and steel ball mix)  
Recommended for hard to lyse microbes within insect or tissue samples.
- NucleoSpin Bead Tube Type F (1–3 mm corundum and 3 mm steel ball mix)  
**To be used ONLY with MN Bead Tube Holder - NOT to be used with other disruption devices!**  
Recommended for hard to process organs like spleen and lung.

## 3.5 Time and frequency of disruption

### 3.5.1 MN Bead Tube Holder

The following recommendations have been established for the MN Bead Tube Holder in combination with a Vortex-Genie® 2 operating at highest frequency. The indicated times of disruption shall serve as guideline. Optimal disruption duration depends on sample type, sample amount, vortex frequency, and liquid volume in the tube and has therefore to be determined by the user.

**For using NucleoSpin® Bead Tubes with other disruption devices, other sample material, time, and frequency have to be individually optimized!**

- **Gram negative bacteria**  
E.g., *Escherichia coli*, *Vibrio fischeri*  
NucleoSpin® Bead Tubes Type B (Alternative: Type A, Type C)  
20 min
- **Gram positive bacteria**  
E.g., *Bacillus subtilis*, *Corynebacterium glutamicum*  
NucleoSpin® Bead Tubes Type B (Alternative: Type A)  
20 min
- **Yeast**  
E.g., *Saccharomyces cerevisiae*  
NucleoSpin® Bead Tubes Type C  
20 min
- **Filamentous fungi**  
E.g., *Aspergillus spec.*, *Rhizopus spec.*  
NucleoSpin® Bead Tubes Type C  
20 min
- **Insect samples**  
E.g., fruit fly (*Drosophila melanogaster*), house cricket (*Acheta domesticus*), field cricket (*Gryllus assimilis*), mealworm (*Tenebrio molitor*), non-biting midge larvae (*Chironomidae*), and mosquito (*Culicidae*)  
NucleoSpin® Bead Tubes Type D  
20 min
- **Hard to lyse microbes within insect or tissue samples**  
E.g., gram positive bacteria within insect samples  
NucleoSpin® Bead Tubes Type E  
20 min
- **Hard to process organs**  
E.g., spleen, lung  
NucleoSpin® Bead Tubes Type F  
20 min

### **3.5.2 MN Bead Tube Holder 5 mL**

The following recommendation has been established for the MN Bead Tube Holder 5 mL in combination with a Vortex-Genie<sup>®</sup> 2 operating at highest frequency. The indicated time of 12 min disruption shall serve as guideline. Optimal disruption duration depends on sample type, sample amount, vortex frequency, and liquid volume in the tube and has therefore to be determined by the user.

---

## 4 Handling of MN Bead Tube Holder and MN Bead Tube Holder 5 mL

---

### 1 Prepare MN Bead Tube Holder / MN Bead Tube Holder 5 mL

Remove the rubber cover from the 3-inch platform of the Vortex-Genie®.

---

### 2 Prepare vortex mixer

Hold the MN Bead Tube Holder (5 mL) tightly with both hands, thumbs on the middle of the top. Slightly bend the holder upwards (pull with your fingers, press with your thumbs) in order to widen the platform accommodation cavity on the bottom side of the holder (Figure 1).

Push the holder carefully onto the 3-inch platform. Make sure that the 3-inch platform is completely inserted in the platform accommodation cavity and that the MN Bead Tube Holder (5 mL) is correctly positioned (Figure 2).

---

### 3 Insert NucleoSpin® Bead Tubes

Insert NucleoSpin® Bead Tubes into the MN Bead Tube Holder (5 mL) and start the vortex device.

A typical duration for sample disruption is 20 min (MN Bead Tube Holder 5 mL; 12 min). The vortex device needs to cool down between two runs.

---



Figure 1



Figure 2



## 5 Cleaning

The MN Bead Tube Holder and MN Bead Tube Holder 5 mL shall be hand washed with lukewarm water only. Do not wash the holder in a dishwasher. Use tap water and soap to clean the holder. The holder can be disinfected with alcoholic disinfectants, 70% ethanol, or 70% isopropanol.

## 6 Appendix

### 6.1 Troubleshooting

| Problem   | Possible cause and suggestions  |
|---|---|
| MN Bead Tube Holder (5 mL) do not fit on vortex device          | <ul style="list-style-type: none"> <li>MN Bead Tube Holder and MN Bead Tube Holder 5 mL are designed to fit on the 3-inch platform of the Vortex-Genie® series. They are not designed for use on other vortex instruments.</li> </ul>   |
| MN Bead Tube Holder (5 mL) drops off the 3-inch vortex platform | <ul style="list-style-type: none"> <li>Make sure that the holder is positioned correctly on the 3-inch platform of the vortex device.</li> <li>Upon prolonged vortexing time (&gt;20 minutes) the vortex device tends to warm up – this might cause an irregular movement and thereby a drop off of the holder. Let the vortex device cool down for 20 min before starting a second run.</li> <li>The MN Bead Tube Holder (5 mL) should mainly perform a circular and planar movement. If the 3-inch platform or the eccentric-clamp-assembly of the vortex instrument is worn-out, this can cause a wobbling movement of the MN Bead Tube Holder (5 mL) and a fall-off from the holder. Make sure to use only intact material. If necessary, replace the 3-inch platform or the eccentric-clamp-assembly.</li> </ul> |
| No or insufficient sample disruption                            | <ul style="list-style-type: none"> <li>Disruption efficiency depends on: sample type and amount, NucleoSpin® Bead Tube type, liquid volume during disruption process, vortexing duration, and frequency. Perform optimization experiments in order to determine parameters for sufficient sample disruption.</li> </ul>   |

## 6.2 Ordering Information

| Product                            | REF                | Pack of         |
|------------------------------------|--------------------|-----------------|
| MN Bead Tube Holder                | 740469             | 1 piece         |
| MN Bead Tube Holder 5 mL           | 740459             | 1 piece         |
| NucleoSpin® Soil                   | 740780.10/.50/.250 | 10/50/250 preps |
| NucleoSpin® DNA Stool              | 740472.10/.50/.250 | 10/50/250 preps |
| NucleoSpin® Microbial DNA          | 740235.10/.50      | 10/50 preps     |
| NucleoSpin® DNA Insect             | 740470.10/.50      | 10/50 preps     |
| NucleoSpin® DNA Lipid Tissue       | 740471.10/.50      | 10/50 preps     |
| NucleoSpin® DNA RapidLyse          | 740100.10/.50/.250 | 10/50/250 preps |
| NucleoSpin® Bead Tubes Type A      | 740768.50          | 50 pieces       |
| NucleoSpin® Bead Tubes Type A 5 mL | 740799.50          | 50 pieces       |
| NucleoSpin® Bead Tubes Type B      | 740812.50          | 50 pieces       |
| NucleoSpin® Bead Tubes Type C      | 740813.50          | 50 pieces       |
| NucleoSpin® Bead Tubes Type D      | 740814.50          | 50 pieces       |
| NucleoSpin® Bead Tubes Type E      | 740815.50          | 50 pieces       |
| NucleoSpin® Bead Tubes Type F      | 740816.50          | 50 pieces       |

### 6.3 Product use restriction/warranty

**MN Bead Tube Holder** and **MN Bead Tube Holder 5 mL** are intended, developed, designed, and sold FOR RESEARCH PURPOSES ONLY, except, however, any other function of the product being expressly described in original MACHEREY-NAGEL product leaflets.

MACHEREY-NAGEL products are intended for GENERAL LABORATORY USE ONLY! MACHEREY-NAGEL products are suited for QUALIFIED PERSONNEL ONLY! MACHEREY-NAGEL products shall in any event only be used wearing adequate PROTECTIVE CLOTHING. For detailed information please refer to the respective Material Safety Data Sheet of the product! MACHEREY-NAGEL products shall exclusively be used in an ADEQUATE TEST ENVIRONMENT. MACHEREY-NAGEL does not assume any responsibility for damages due to improper application of our products in other fields of application. Application on the human body is STRICTLY FORBIDDEN. The respective user is liable for any and all damages resulting from such application.

DNA/RNA/PROTEIN purification products of MACHEREY-NAGEL are suitable for IN VITRO-USES ONLY!

ONLY MACHEREY-NAGEL products specially labeled as IVD are also suitable for IN VITRO-diagnostic use. Please pay attention to the package of the product. IN VITRO-diagnostic products are expressly marked as IVD on the packaging.

IF THERE IS NO IVD SIGN, THE PRODUCT SHALL NOT BE SUITABLE FOR IN VITRO-DIAGNOSTIC USE!

ALL OTHER PRODUCTS NOT LABELED AS IVD ARE NOT SUITED FOR ANY CLINICAL USE (INCLUDING, BUT NOT LIMITED TO DIAGNOSTIC, THERAPEUTIC AND/OR PROGNOSTIC USE).

No claim or representations is intended for its use to identify any specific organism or for clinical use (included, but not limited to diagnostic, prognostic, therapeutic, or blood banking). It is rather in the responsibility of the user or - in any case of resale of the products - in the responsibility of the reseller to inspect and assure the use of the DNA/RNA/protein purification products of MACHEREY-NAGEL for a well-defined and specific application.

MACHEREY-NAGEL shall only be responsible for the product specifications and the performance range of MN products according to the specifications of in-house quality control, product documentation and marketing material.

This MACHEREY-NAGEL product is shipped with documentation stating specifications and other technical information. MACHEREY-NAGEL warrants to meet the stated specifications. MACHEREY-NAGEL's sole obligation and the customer's sole remedy is limited to replacement of products free of charge in the event products fail to perform as warranted. Supplementary reference is made to the general business terms and conditions of MACHEREY-NAGEL, which are printed on the price list. Please contact us if you wish to get an extra copy.

There is no warranty for and MACHEREY-NAGEL is not liable for damages or defects arising in shipping and handling (transport insurance for customers excluded), or out of accident or improper or abnormal use of this product; defects in products or components not manufactured by MACHEREY-NAGEL, or damages resulting from such non-MACHEREY-NAGEL components or products.

MACHEREY-NAGEL makes no other warranty of any kind whatsoever, and SPECIFICALLY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES OF ANY KIND OR NATURE

WHATSOEVER, DIRECTLY OR INDIRECTLY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, AS TO THE SUITABILITY, REPRODUCTIVITY, DURABILITY, FITNESS FOR A PARTICULAR PURPOSE OR USE, MERCHANTABILITY, CONDITION, OR ANY OTHER MATTER WITH RESPECT TO MACHEREY-NAGEL PRODUCTS.

In no event shall MACHEREY-NAGEL be liable for claims for any other damages, whether direct, indirect, incidental, compensatory, foreseeable, consequential, or special (including but not limited to loss of use, revenue or profit), whether based upon warranty, contract, tort (including negligence) or strict liability arising in connection with the sale or the failure of MACHEREY-NAGEL products to perform in accordance with the stated specifications. This warranty is exclusive and MACHEREY-NAGEL makes no other warranty expressed or implied.

The warranty provided herein and the data, specifications and descriptions of this MACHEREY-NAGEL product appearing in MACHEREY-NAGEL published catalogues and product literature are MACHEREY-NAGEL's sole representations concerning the product and warranty. No other statements or representations, written or oral, by MACHEREY-NAGEL's employees, agent or representatives, except written statements signed by a duly authorized officer of MACHEREY-NAGEL are authorized; they should not be relied upon by the customer and are not a part of the contract of sale or of this warranty.

Product claims are subject to change. Therefore please contact our Technical Service Team for the most up-to-date information on MACHEREY-NAGEL products. You may also contact your local distributor for general scientific information. Applications mentioned in MACHEREY-NAGEL literature are provided for informational purposes only. MACHEREY-NAGEL does not warrant that all applications have been tested in MACHEREY-NAGEL laboratories using MACHEREY-NAGEL products. MACHEREY-NAGEL does not warrant the correctness of any of those applications.

Last updated: 07/2010, Rev. 03

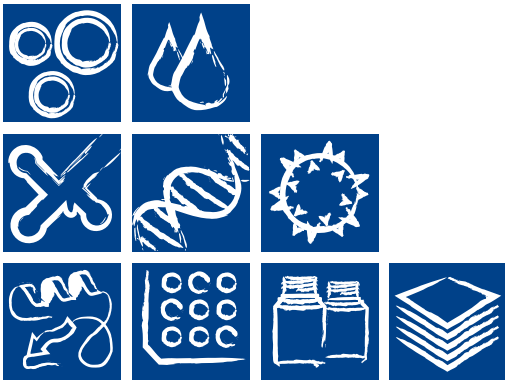
Please contact:  
MACHEREY-NAGEL GmbH & Co. KG  
Tel.: +49 24 21 969-270  
tech-bio@mn-net.com

---

Trademarks:

Vortex-Genie® is a registered trademark of Scientific Industries, Inc.  
NucleoSpin® is a registered trademark of MACHEREY-NAGEL GmbH & Co KG

All used names and denotations can be brands, trademarks, or registered labels of their respective owner – also if they are not special denotation. To mention products and brands is only a kind of information (i.e., it does not offend against trademarks and brands and can not be seen as a kind of recommendation or assessment). Regarding these products or services we can not grant any guarantees regarding selection, efficiency, or operation.



[www.mn-net.com](http://www.mn-net.com)

## MACHEREY-NAGEL



MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6-8 · 52355 Düren · Germany

DE / International:

Tel.: +49 24 21 969-0  
 Fax: +49 24 21 969-199  
 E-mail: [info@mn-net.com](mailto:info@mn-net.com)

CH:

Tel.: +41 62 388 55 00  
 Fax: +41 62 388 55 05  
 E-mail: [sales-ch@mn-net.com](mailto:sales-ch@mn-net.com)

FR:

Tel.: +33 388 68 22 68  
 Fax: +33 388 51 76 88  
 E-mail: [sales-fr@mn-net.com](mailto:sales-fr@mn-net.com)

US:

Tel.: +1 484 821 0984  
 Fax: +1 484 821 1272  
 E-mail: [sales-us@mn-net.com](mailto:sales-us@mn-net.com)