



# Sample processing

## User manual

MN Bead Tube Holder

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# 1 Contents

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## 2 Product description

The **MN Bead Tube Holder** is designed to be used in combination with a Vortex-Genie<sup>®</sup> instrument and a 3-inch platform in order to house up to 12 bead tubes and to disrupt biological samples for subsequent nucleic acid purification with NucleoSpin<sup>®</sup> kits.

### 2.1 Product specification

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

Technology	High density polyethylene foam, shaped piece
Format	138 x 110 x 25 mm
Sample material	NucleoSpin <sup>®</sup> Bead Tubes with biological sample for disruption
Sample amount	Up to 12 Bead Tubes per run
Runtime	Up to 20 min per run

## 3 General remarks

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

Reagents and consumables

- NucleoSpin® Bead Tubes Type A, B, C, D, E, or F
- NucleoSpin® Kit (e.g., NucleoSpin® Soil, NucleoSpin® Microbial DNA, NucleoSpin® DNA Insect , NucleoSpin® DNA Lipid Tissue, NucleoSpin® DNA RapidLyse)

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, 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)
- 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)

### 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 and sediment (included in NucleoSpin® Soil).
- 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

The following recommendations have been established for the MN Bead Tube Holder in combination with a Vortex-Genie<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> Bead Tubes Type B (Alternative: Type A, Type C)  
20 min
- **Gram-positive bacteria**  
E.g., *Bacillus subtilis*, *Corynebacterium glutamicum*  
NucleoSpin<sup>®</sup> Bead Tubes Type B (Alternative: Type A)  
20 min
- **Yeast**  
E.g., *Saccharomyces cerevisiae*  
NucleoSpin<sup>®</sup> Bead Tubes Type C  
20 min
- **Filamentous fungi**  
E.g., *Aspergillus spec.*, *Rhizopus spec.*  
NucleoSpin<sup>®</sup> 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<sup>®</sup> Bead Tubes Type D  
20 min
- **Hard-to-lyse microbes within insect or tissue samples**  
E.g., gram-positive bacteria within insect samples  
NucleoSpin<sup>®</sup> Bead Tubes Type E  
20 min
- **Hard-to-process organs**  
E.g., spleen, lung  
NucleoSpin<sup>®</sup> Bead Tubes Type F  
20 min

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## 4 Handling of MN Bead Tube Holder

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### 1 Prepare MN Bead Tube Holder

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

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### 2 Prepare vortex mixer

Hold the MN Bead Tube Holder 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 (Fig. 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 is correctly positioned (Fig. 2).

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### 3 Insert NucleoSpin® Bead Tubes

Insert NucleoSpin® Bead Tubes into the MN Bead Tube Holder and start the vortex device.

A typical duration for sample disruption is 20 min. The vortex device needs to cool down between two runs.

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Figure 1

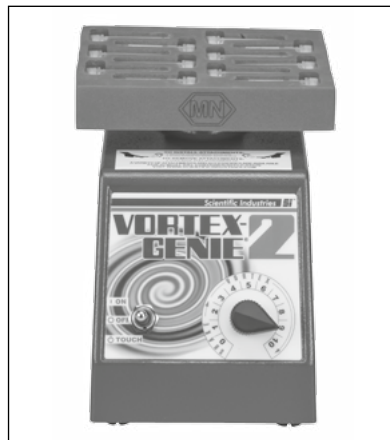


Figure 2

## 5 Cleaning

The MN Bead Tube Holder 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 does not fit on vortex device	<ul style="list-style-type: none"> <li>MN Bead Tube Holder is designed to fit on the 3-inch platform of the Vortex-Genie® series. It is not designed for use on other vortex instruments.</li> </ul>
MN Bead Tube Holder 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 MN Bead Tube Holder. Let the vortex device cool down for 20 min before starting a second run.</li> <li>The MN Bead Tube Holder 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 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

<b>Product</b>	<b>REF</b>	<b>Pack of</b>
MN Bead Tube Holder	740469	1 piece
NucleoSpin® Soil	740780.10 / .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 Tube Type A	740768.50	50 pieces
NucleoSpin® Bead Tube Type B	740812.50	50 pieces
NucleoSpin® Bead Tube Type C	740813.50	50 pieces
NucleoSpin® Bead Tube Type D	740814.50	50 pieces
NucleoSpin® Bead Tube 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** is 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.

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