



# LC-NMR/MS Single Table 2

**User Manual**

**Version 001**



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# About this Manual

# 1

## **Introduction**

1.1

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The LC-NMR/MS Single Table 2 is designed to provide a storage area for Bruker Mass Spectrometers (e.g. MicroTOF, esquire) and their vacuum pumps, as well as the Bruker NMR-MS Interface 2 (BNMI 2).

This manual is included with the delivery of the LC-NMR/MS Single Table 2. It provides instructions on how to:

- Install and configure the unit.
- Wire and operate the unit.
- Service and maintain the unit.

## **Disclaimer**

1.2

---

The unit should only be used for the purposes intended as described in this manual. Use of the unit for any purpose other than that for which it is intended will be taken at the users own risk and will invalidate any and all manufacturer warranties.

Service or maintenance work on the unit must only be carried out by trained, qualified personnel.

Only those people schooled in the operation of the LC-NMR/MS Single Table 2 should operate the unit.

Read this manual before operating the unit. Pay particular attention to any safety related information.

There are two types of information notices used in this manual. These notices highlight important information or warn the user of a potentially dangerous situation. The following notices will have the same level of importance throughout this manual.



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Note: Indicates important information or helpful hints

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**WARNING:** Indicates the possibility of severe personal injury, loss of life or equipment damage if the instructions are not followed.

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For further technical assistance on the LC-NMR/MS Single Table 2 unit, please do not hesitate to contact your nearest BRUKER dealer or contact us directly at:

BRUKER BioSpin GmbH  
am Silberstreifen  
D-76287 Rheinstetten  
Germany

Phone: + 49 721 5161 0  
FAX: + 49 721 5171 01  
E-mail: [lcnmr@bruker-biospin.de](mailto:lcnmr@bruker-biospin.de)  
Internet: [www.bruker-biospin.de](http://www.bruker-biospin.de)

# Terms and Definitions

# 2

The following terms and definitions are used in this manual:

<b>BMSO:</b>	<b>Bruker Multi-column Stopflow Oven</b>
<b>BNMI2:</b>	<b>Bruker NMR-MS Interface 2</b>
<b>BPSU36-2:</b>	<b>Bruker Peak Sampling Unit 2</b>
<b>DAD:</b>	<b>Diodes Array Detector</b>
<b>EPP foam:</b>	<b>Expanded Polypropylene foam</b>
<b>esquire:</b>	<b>Bruker Ion Trap MS System</b>
<b>esquire 3000:</b>	<b>Successor to the esquire</b>
<b>EWS:</b>	<b>Embedded Web Server</b>
<b>HPLC:</b>	<b>High Performance Liquid Chromatography</b>
<b>HyStar:</b>	<b>Bruker PC program controlling chromatography system and LC-NMR interfaces BSFU, BPSU36, BNMI2, BMSO, and SPE.</b>
<b>LC-NMR:</b>	<b>Combined HPLC and NMR analysis</b>
<b>MS:</b>	<b>Mass Spectroscopy</b>
<b>SPE:</b>	<b>Solid Phase Extraction</b>
<b>MicroTOF:</b>	<b>Time Of Flight Mass Spectrometer</b>

# Terms and Definitions



# Product Information

# 3

## Product Identification

3.1

**Description:** LC-NMR/MS Single Table 2

**Part No.:** H10166

**Vendor:**

Bruker BioSpin GmbH  
Silberstreifen  
76287 Rheinstetten (Germany)



Figure 3.1. Front and Rear Views of the LC-NMR/MS Single Table 2



Figure 3.2. View of the LC-NMR/MS Single Table 2 with Doors Open

### **Product Description**

### **3.2**

The LC-NMR/MS Single Table 2 consists of the following parts.

- Table top (blue veneered block board).
- Chassis
- Three drawers
- Pump support
- Distribution box
- Fan box
- Waste bottle holder
- Rollers

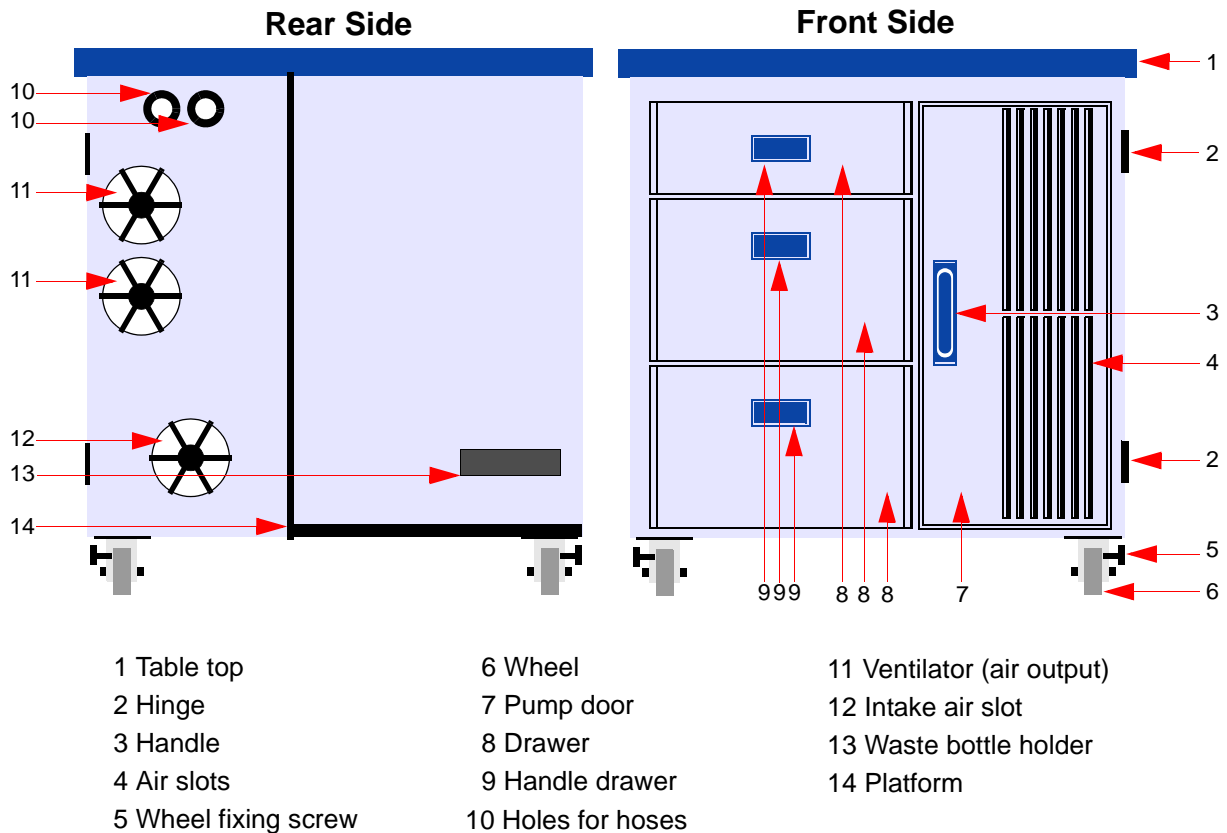


Figure 3.3. Unit Front and Rear Views

The numbers used in the following description refer to the figure above:

- The chassis is designed with stainless steel sheets and profiles and is assembled by spot welding. The surface is powder laminated and painted (RAL 8005).
- On the rear side of the cabinet are two holes (#10) to insert tubes through the wall.
- There are three ventilators located on the rear side, two ventilators which output warm air from inside (#11) and one on the bottom (indicated at pump motor) that inputs air for the vacuum aggregate (#12).
- On the right rear side is space and a holder for the spectrometer's waste bottle (#13).
- Between the ventilators and the waste bottle holder is the distribution box which supplies electrical power to all the equipment.
- On the front right side is a door (#7) leading to the telescopic pump support.
- On the front left side are three drawers (#8) for accessories and tools.
- There are also four wheels (#6) mounted on the bottom for easy transportation.

### *Environmental Operating Conditions*

3.3

**Maximum elevation:** 2000 meters above sea level.

**Temperature range:** Between +5°C and +40°C.

**Highest relative humidity:** 80% for temperature up to 31°C, linear decreasing until 50% relative humidity at 40°C.

**Storage temperature:** Between 0°C and +40°C.

### *Location of Mains Power Connections*

3.4

#### *Mains Power Supply Line-In*

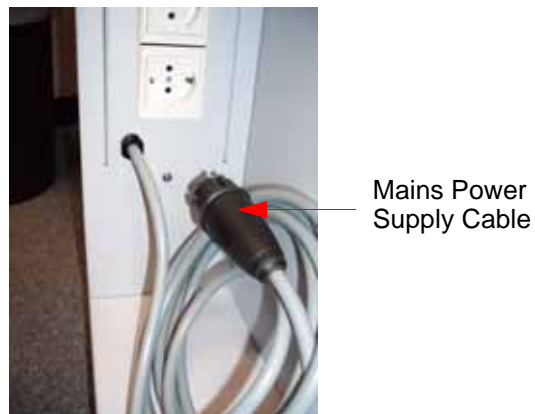


Figure 3.4. Location of Mains Power Supply Cable

Power Requirements: 230V/50-60Hz

Power Input (maximum): 3500VA

#### *Line-In Filter*



Figure 3.5. Line-In Filter



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**The Foreline pump input (Line-In filter) must be connected to the MicroTOF / esquire Foreline pump output.**

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Fuses: 2xT8A/250V

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**Dimensions and Weights**

**3.5**

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Height:	840mm
Width:	800mm
Depth:	800mm
Weight:	86kg
Maximum load:	200kg

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**Cleaning Instructions**

**3.6**

Instructions for cleaning the unit:

1. Disconnect all lines and cables.
2. Clean all the parts with a dry or moist lint-free cloth.
3. Wait until all the parts are dry before reconnecting the lines and cables.



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Use only neutral cleaner or water for cleaning. Do not use benzine or thinner, as these liquids may damage the surfaces.

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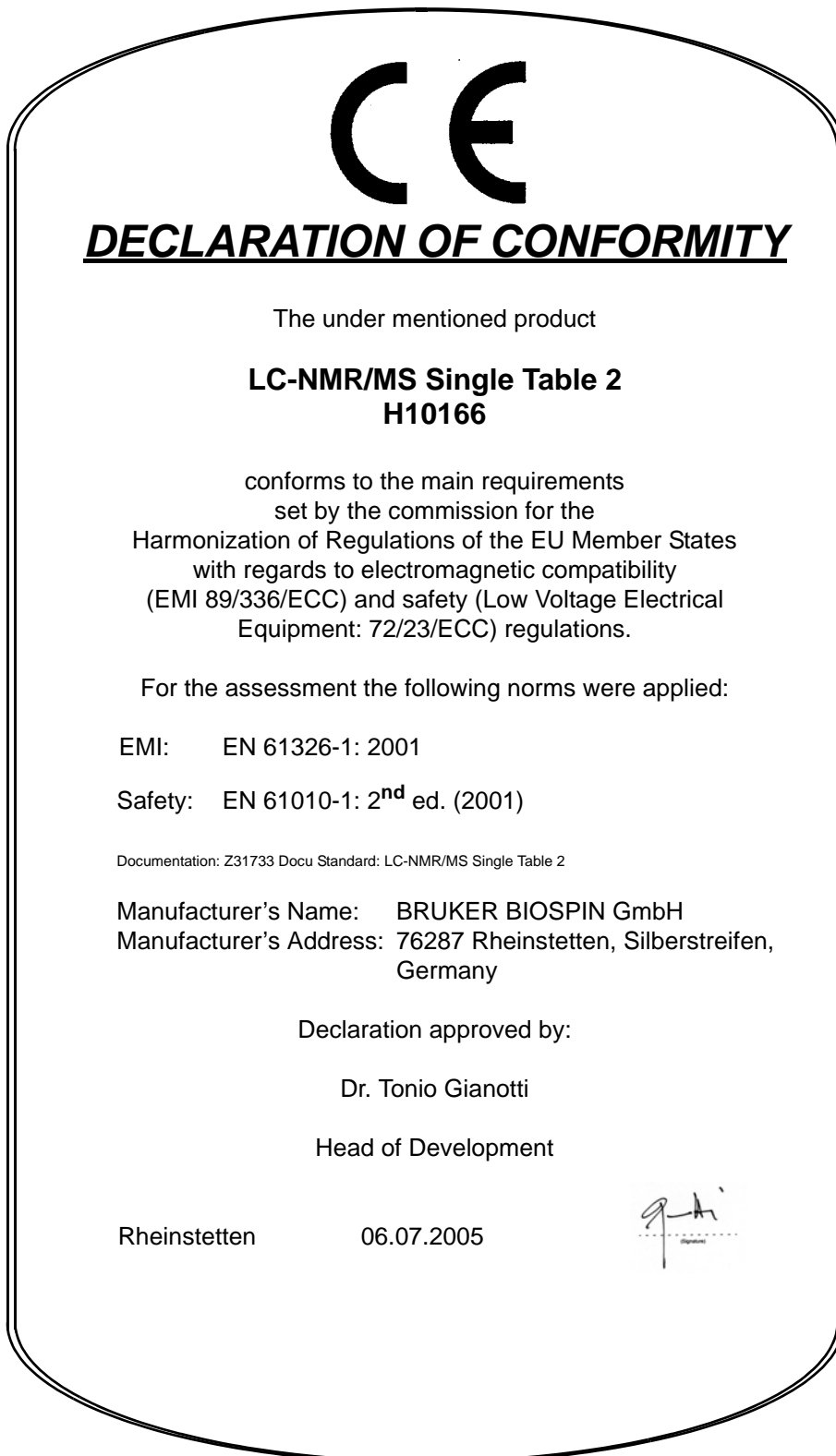


Figure 3.6. Declaration of Conformity



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*The mains connection to the unit is supplied via the largest pin in the Euro-Standard 3-pin connector. This connector must be connected to the ground using either the mains cable supplied or one of similar specifications. Incorrect grounding of the unit can be very dangerous!*

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*The air flow through the pump unit must not be obstructed. Make sure that the front and rear air passageways are not blocked!*

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*Shut down the system before moving the table!*

---

The LC-NMR/MS Single Table 2 is designed as a compact table for storing various BRUKER mass spectrometers and their accessories.

The table may be used in areas where mass spectrometers are sited refer to their respective manuals for more information.

The platform dimensions coincide with different mass spectrometers, such as the MicroTOF and the esquire line. If you are not sure whether your device can be used with the table, check with Bruker.

It is highly recommended that the mass spectrometer's line output (Foreline pump) be connected to the table line input (line filter) using the cable P/N 69047.

Safe operation of the system is only possible when the vacuum pump is controlled by the mass spectrometer.





# Installation

# 4

## Before Installation

## 4.1

Before installation of the table, pump and mass spectrometer check if all the parts listed in the table below are present:

Table 4.1. Parts List

Part No.	Part Description	Quantity
HZ12734	Table Top	1
W3005056	Cabinet	1
69047	Mains extension cable (from Mass Spectrometer line out to line in Single Table 2	1
79845	Feet for Vacuum Pump	4
11139	Hex socket screws M6x40 (for mounting the table top)	3
86780	Plug for screw holes (for the holes on table top)	4
85853	Vacuum tension ring	2
85854	Vacuum centring and O-ring gasket NW25	2
85851	Vacuum 90° Fitting NW25	1

## Siting Information

## 4.1.1

The table should be sited in a level surface, not less than 150 mm from the wall so that the air flow is not inhibited.

An electrical outlet should be within 4 meters of the unit (due to power cable length).

Refer to **Figure 5.1.** and **Figure 5.2.** for the location of the various connections and parts.

1. Mount the table top to the cabinet using the three M6x40 hex socket screws.
2. Place the three black plastic caps over the screw holes to seal.
3. Set the MS system on the table top.
4. Connect the ventilator power cable.
5. Install the rubber feet on the vacuum pump's flange.
6. Place the pump on tray of the right side drawer (see **Figure 3.2.**).

Push the vacuum pump aggregate as far as possible into the cabinet so that the motor ventilator is located near the cabinet's rear opening.



---

The pump must be placed in the middle of the drawer platform and should not come in contact with any of the chassis parts (transmission of vibrations must be avoided).

---

7. Connect the main vacuum hose to the pump and the mass spectrometer (the hose should be placed through one of the holes on the rear side of the unit).
8. Connect the hose from the oil mist eliminator to the waste bottle on the rear side the table. The waste bottle must be fixed at the rear side using the elastic strap.
9. Connect either (depending on your pump) the spiral cable with the inlet connector (for non-heating apparatus), or the power socket, from the distribution box (inside the cabinet) to the vacuum pump.
10. Check the vacuum pump oil level (and fill if necessary).
11. Set the pump onto the tray and fasten it using the knurled screws. Refer to the vacuum pump manual for more information on the pump.
12. Close the cabinet door.
13. Make the following external connections (refer to **Figure 5.4.**)

-Connect the mains power cables from the external units (e.g. BNMI2) to the power sockets on the outside of the distribution box.

- Connect the mass spectrometer *line-out* (Foreline pump out) to the *line-in* at the distribution box.



---

***The line-in connector at the distribution box must never be connected directly to the mains power supply. It must always be connected to the pump line-out on the mass spectrometer.***

---

14. After all other units have been connected to the table (according to their respective manuals) connect the table mains power cable.
15. Ensure that the two ventilators at the rear side are functioning correctly (the air flow must go from inside to out). The pump motor's air flow must go from outside to inside.
16. Once the installation is complete, move the unit to its final location and tighten the wing screws to secure prevent it from moving.



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***When moving to the final destination, check that you remain outside the 5 gauss line of the NMR magnet.***

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***Ensure that the system is not attracted by the NMR magnet during the transportation.***

---

The table is now ready for operation.



# Operation and Maintenance

# 5

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## **Placing the Unit into Operation**

**5.1**

Once the LC-NMR/MS Single Table 2 has been installed as described in Chapter 4 it is ready for operation.

---

## **Shutting Down the System**

**5.2**

When the unit will not be used for a longer period of time, or to perform user maintenance, turn off the system components (BNMI2, esquire, MicroTOF, etc.) and disconnect the table mains power supply.

When the unit will be disconnected and not used for a period of time, cover the complete system to protect it from dust and damage.

---

## **User Maintenance**

**5.3**

The following maintenance checks must be routinely carried out by the user in the interval specified. Failure to do so may result in invalidation of the warranty.

1. The ventilators at the back of the unit should be checked daily for operation.
2. The airways should be checked **every 6 months**. This includes:
  - The air input through the front door.
  - The air input for the vacuum pump motor on the rear of the unit.
  - The airway output from the rear side ventilators.

To check the airways shut down the system components and disconnect the mains cable. If necessary clean all the airways with a dry brush and a lint-free cloth.

3. Check the vacuum pump's **oil level** based on the manufacturers recommendations (refer to the respective operators manual).

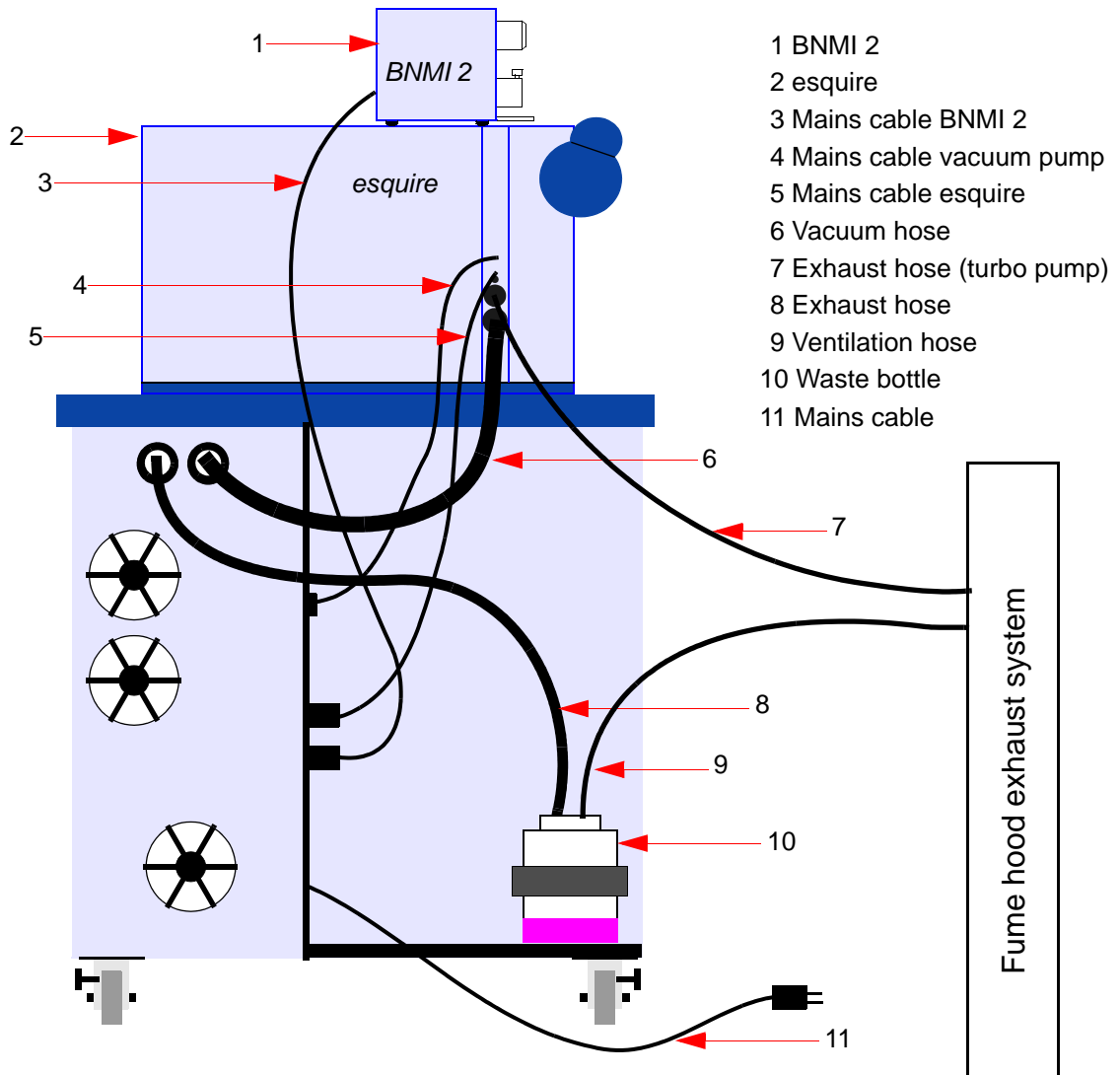


Figure 5.1. Single Table 2 with esquire (rear view)

Configuration with MicroTOF

5.4.2

- 1 MicroTOF
- 2 Oil mist eliminator
- 3 Line input filter



Supply for this line input filter may only come from mass spectrometer.

- 4 Ground leakage circuit breaker
- 5 Power socket
- 6 Rotary vacuum pump
- 7 Pump support

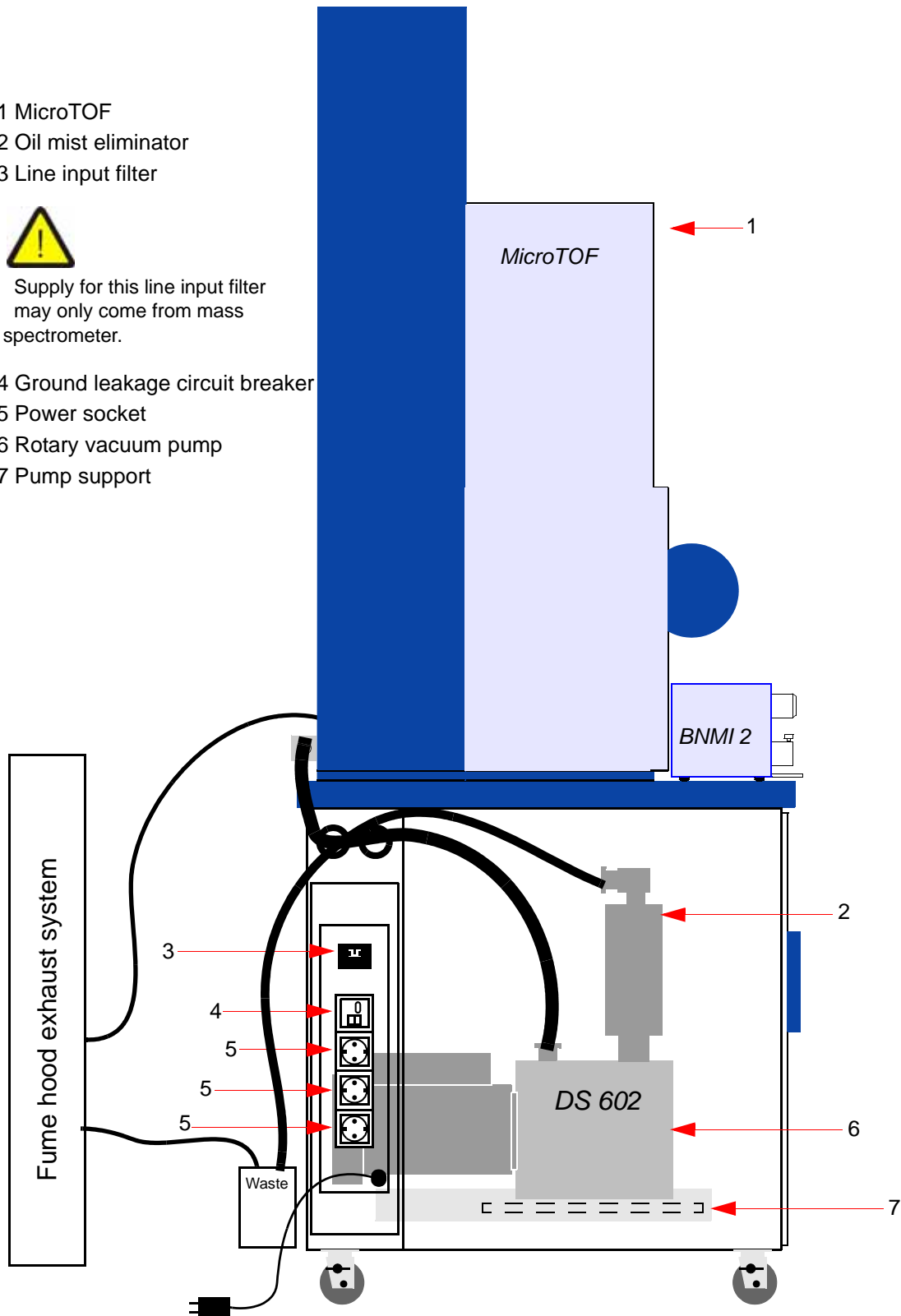


Figure 5.2. Single Table 2 with MicroTOF Side View

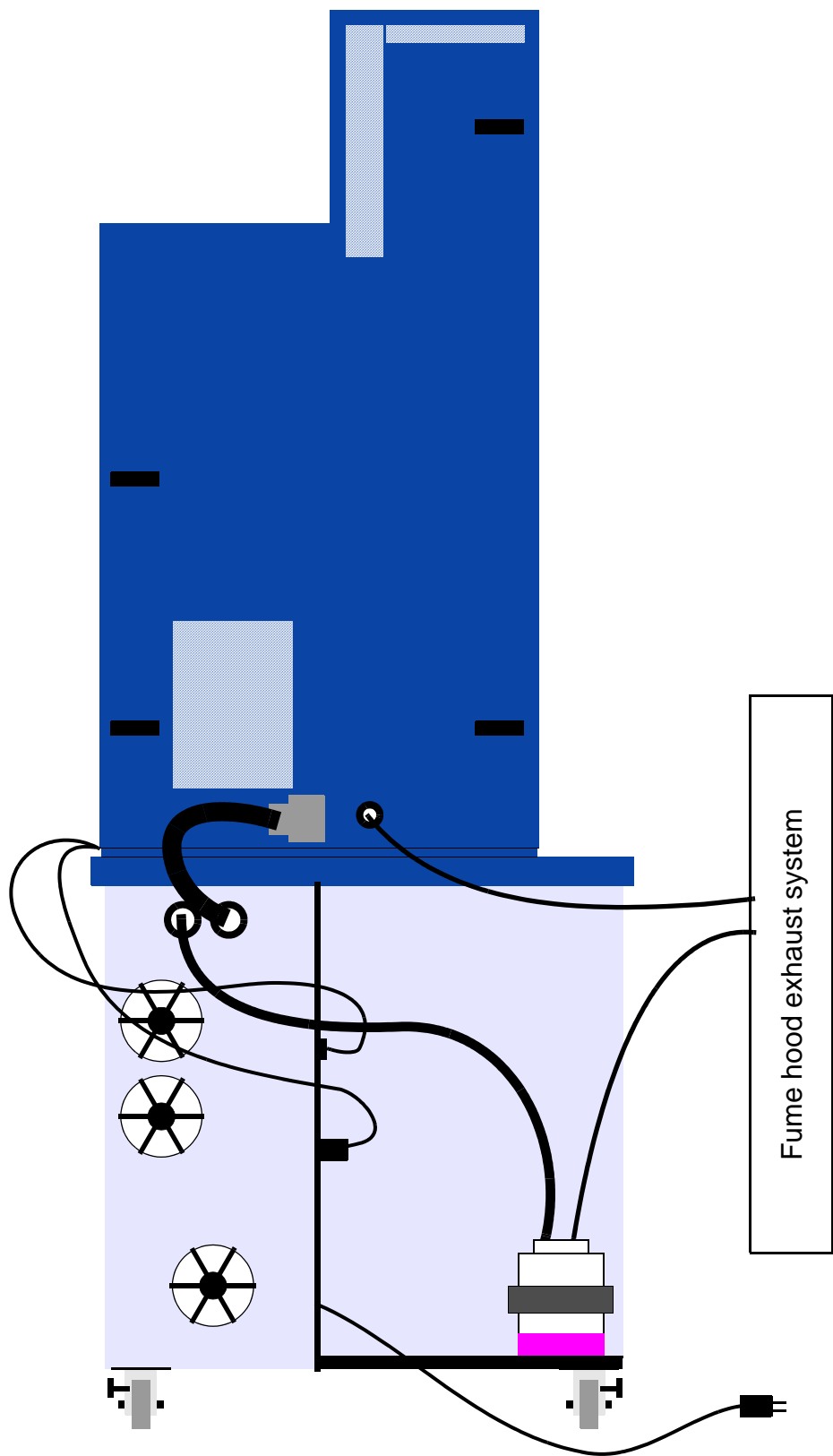


Figure 5.3. Single Table 2 with MicroTOF Rear View



### Distribution Box Wiring W5200166

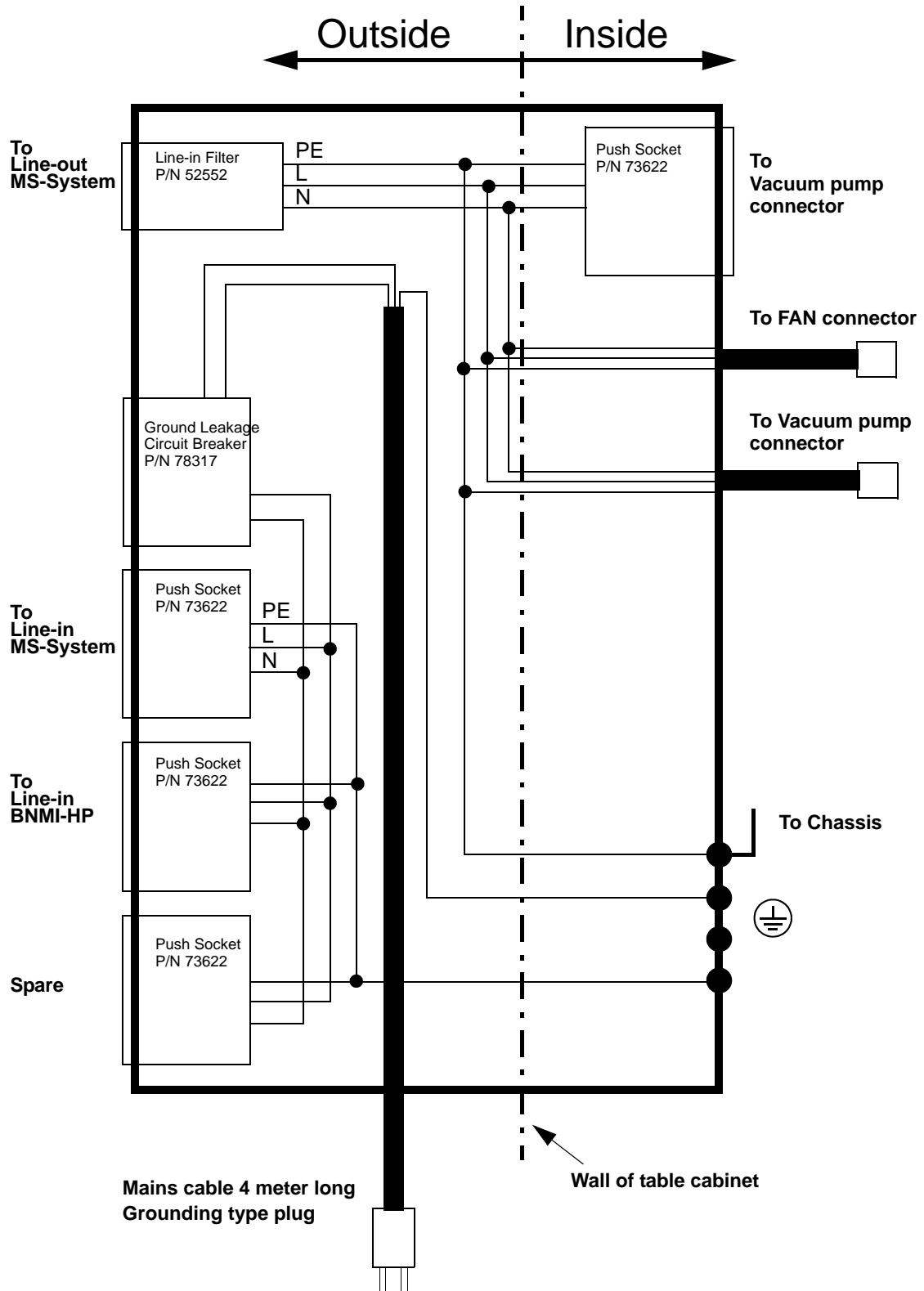


Figure 5.4. Distribution Box Wiring



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