BenchMike - NMS
Operator's Manual

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Section 1 Introduction

Introduction

The BenchMike – Neutral Measurement System is a specialized system designed to measure the diameter and compute the circular mill area (CMA) of wires (a.k.a. neutrals). The system consists of a Beta LaserMike Model 283 BenchMike, a v-block or auto-rotating fixture, a PC, a printer, an optional Metrologic MS9520 Voyager bar code scanner, and custom PC software described herein.

Installation

Although BenchMike-NMS creates a number of files when it is run, there is only one file needed for installation. To install the BenchMike-NMS software, create a directory on the C: drive named C:\BenchMike-NMS and copy the file named BenchMike-NMS.exe to that directory.

To run BenchMike-NMS, click Run on the Windows Start Menu and select C:\BenchMike-NMS\BenchMike-NMS.exe, double click C:\BenchMike-NMS\BenchMike-NMS.exe from within Windows Explorer, or create and use a shortcut on the Windows desktop.

Running BenchMike-NMS for the First Time

The first time BenchMike-NMS is ran, the communication parameters of the PC for communication with the BenchMike are defaulted to ComPort 1, 9600 baud, no parity, 8 data bits, and 1 stop bit.

Be sure to match the BenchMike serial port configuration (refer to the Model 283 Operator's Manual) to the ComPort settings of BenchMike-NMS.
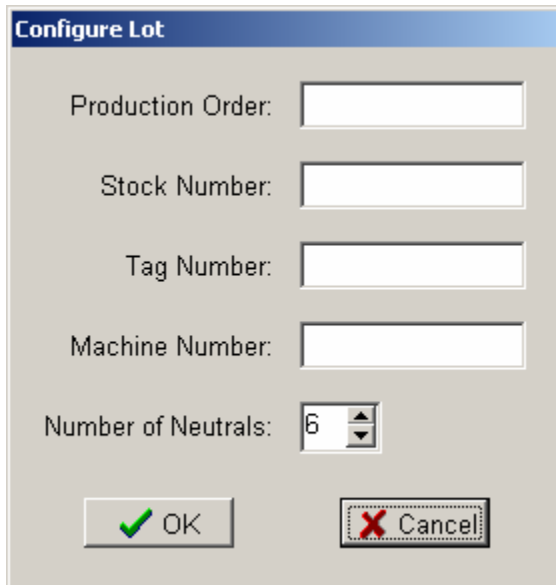
The first time BenchMike-NMS is ran, the Bar Code Scanner ComPort setting for communication with the optional bar code scanner is defaulted to Off.

Be sure to select the number of the ComPort to which the bar code scanner is attached.

Any changes made to the BenchMike-NMS ComPort Settings will be saved to disk and retrieved the next time BenchMike-NMS is run.

Section 2   Configure Lot

The Configure Lot window is displayed each time the program is started and when New Lot is clicked from the Main Page.

Production Order   Enter the production order number.

Stock Number   Enter the stock number.

Tag Number   Enter the tag number.

Machine Number   Enter the machine number.

Number of Neutrals   Enter the number of neutrals to be measured (6 – 54).

OK   Click OK to accept changes, clear data, and start a new lot.

Cancel   Click Cancel to discard any changes and retain data from a previous lot.

Note: The optional bar code scanner can be used to automate the entry of the production order, stock number, tag number, machine number, and number of neutrals. The bar code for the production order is expected to be 16 digits with only the first 10 digits representing the actual production order. The bar code for the stock number and tag number is expected to be 14 digits with the first 8 digits representing the stock number and the last 6 digits representing the tag number. The bar code for the machine number is expected to be 2 digits with a value less than 06. The bar code for the number of neutrals is expected to be 1 or 2 digits.

Section 3   BenchMike-NMS Main Page

Production Order, Stock Number, Tag Number, and Machine Number

The current user specified production order number, stock number, tag number, and machine number are displayed at the bottom of the Main Page.

Summary Data and the Data Table

Diameter measurements of each neutral will be performed by the BenchMike and transmitted to the PC via a serial port. The BenchMike may be configured to perform and transmit a single measurement or calculate and transmit the average of multiple measurements. Regardless, the BenchMike-NMS software expects to receive a single measurement value for each neutral.

When BenchMike-NMS receives a measurement, it displays the number of the neutral, the diameter, and the calculated CMA in the data table.

CMA = Diameter (in mils) * Diameter (in mils)

The summary data (i.e. maximum Diameter, minimum diameter, average diameter, and total CMA) is also updated with the receipt of each new measurement.

Total CMA = Sum of all individual CMA values

Note: When the Main Page is resized, the widths of the columns in the data table do not automatically change. However, if desired, they may be manually sized or auto sized. To auto size, right click anywhere within the data table and then click Auto Size. Any changes made to the column widths will be saved to disk and retrieved the next time BenchMike-NMS is run. To restore the default column widths, right click anywhere within the data table and then click Restore Defaults.

Menu and Tool Buttons

To access the BenchMike-NMS Menu, click Menu in the upper left hand corner of the Main Page. Tool Buttons, provided for most of the Menu items, are located along the top of the Main Page and around the data table.

Auto Print	Click Auto Print to check or uncheck this menu item. If Auto Print is checked, a printed report will automatically be generated when all specified neutrals for the lot have been measured.
Auto Save	Click Auto Save to check or uncheck this menu item. If Auto Save is checked, all displayed data will automatically be saved to a file when all specified neutrals for the lot have been measured.
New Lot	Click New Lot to configure and start a new lot.
Remove	Click Remove to remove the data for the last neutral in the table. When a neutral is removed, all summary data is recalculated accordingly.
Print	Click Print to manually print a report.
Save	Click Save to manually save the data to a file.
ComPorts	Click ComPorts to configure the ComPorts for communication with the BenchMike and optional bar code scanner.
Init MS9520	Click Init MS9520 to send a message to the MS9520 bar code scanner to instruct it to accept down to single character bar codes instead of the default of a minimum of three characters. This will only need to be done if the MS9520 is restored to defaults or if using a new MS9520 for the first time. **Note:** this menu item does not appear if the setting for the Bar Code Scanner ComPort is set to Off.
Exit	Click Exit to exit from BenchMike-NMS.
About	Click About to display the BenchMike-NMS version information.

Section 4   Printed Report

The printed report contains a header (i.e. production order, stock number, tag number, machine number, date, and time), the summary data (i.e. maximum diameter, minimum diameter, average diameter, and total CMA), and a table of diameters and CMA values for all measured neutrals.

Forte Power Systems
Production Order: 1234567890
Stock Number: 87654321
Tag Number: 123456
Machine Number: 81996
Printed: 4/24/2003 11:11:23 AM

Maximum Diameter:	0.074	**Average Diameter:**	0.061
Minimum Diameter:	0.050	**Total CMA:**	22349

Neutral	Diameter	CMA
1	0.064	4096
2	0.065	4225
3	0.074	5476
4	0.050	2500
5	0.054	2916
6	0.056	3136

Section 5   Data File

The filename for the data file will consist of the lot number (i.e. combination of stock number and tag number), date, and time. For example, 87654321123456 04-24-03 17-30.txt would be generated for lot number 87654321123456 on April 24, 2003 at 5:30 p.m. Data files will be saved to a subdirectory named \Data which will be created in whatever directory the application is running.

The format for the data file will be:

\<production order\>,\<stock number\>,\<tag number\>,\<machine number\>,\<date\>,\<time\>
\<maximum diameter\>,\<minimum diameter\>,\<average diameter\>,\<total CMA\>
\<diameter neutral 1\>,\<CMA neutral 1\>
\<diameter neutral 2\>,\<CMA neutral 2\>
\<diameter neutral 3\>,\<CMA neutral 3\>
etc.

For example:

```
1234567890,87654321,123456,81996,4/24/2003,05:30:35 PM
0.074,0.050,0.061,22349
1,0.064,4096
2,0.065,4225
3,0.074,5476
4,0.050,2500
5,0.054,2916
6,0.056,3136
```

Section 6   ComPort Settings

Click ComPorts on the Main Page to display the Configure ComPorts window.

The displayed settings are for the PC's ComPorts. These settings must match those of the BenchMike and optional bar code scanner.

ComPort settings are saved to disk and retrieved the next time BenchMike-NMS is run.

BenchMike

    ComPort   Specifies the ComPort of the PC to which the BenchMike is connected.

    Baud Rate   Specifies the baud rate of the serial communication between the PC and the BenchMike (1200, 2400, 4800, 9600, 19200).

    Parity   Specifies the parity for the serial communication between the PC and the BenchMike (none, odd, or even).

    Data Bits   Specifies the number of data bits for the serial communication between the PC and the BenchMike processor (7 or 8).

Stop Bits   Specifies the number of stop bits for the serial communication between the PC and the BenchMike processor (1 or 2).

Note: BenchMike-NMS expects the data it receives to be by itself, with no header, and terminated by a carriage return. Be sure to configure the BenchMike settings on the Serial Output Format Setup screen accordingly. For more information, refer to the Model 283 Operator's Manual.

Bar Code Scanner

ComPort   Specifies the ComPort of the PC to which the bar code scanner is connected. Set to Off if not using the optional bar code scanner.

Baud Rate   Specifies the baud rate of the serial communication between the PC and the bar code scanner. This setting is fixed at 9600 baud.

Parity   Specifies the parity for the serial communication between the PC and the bar code scanner. This setting is fixed at space parity.

Data Bits   Specifies the number of data bits for the serial communication between the PC and the bar code scanner. This setting is fixed at 8 data bits.

Stop Bits   Specifies the number of stop bits for the serial communication between the PC and the bar code scanner. This setting is fixed at 1 stop bit.

OK   Click OK to accept changes.

Cancel   Click Cancel to discard changes.