MFRS OF CNC COIL WINDING MACHINES

INSTRUCTION MANUAL

CNC TOROIDAL COIL WINDING MACHINE

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
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Dear customer Thank you for purchase our machines.
Before Run the machine ENTER your winding data. as per below instuction

Power On :

Connect the power cord supplied to the power socket provided at the back of the machine and the other end to 230 Volts mains supply. Switch on the power to the machine by turning on the power switch located on the right hand side of the machine. After initialization, the last executed program is automatically retrieved from memory and the machine is ready for executing the same program.   The display reads

```
┌─────────────────────────┐
│  LOAD          WIND     │
│   ⇧                     │
└─────────────────────────┘
```
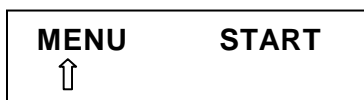
The user can select either load or wind options by pressing the respective keys on the front end of the machine, labeled LOAD & WIND.

In this position the cursor keys are assigned the following alternate functions. The shuttle is moved in the clockwise direction by pressing and holding the Key. The shuttle is moved in the anti clockwise direction by pressing and holding the Key. The core is indexed in the clockwise direction by pressing and holding the key. The core is indexed in the anti clockwise direction by pressing and holding the key.

These features are useful for positioning the shuttle for loading the wire and the core for winding process.

Press ENTER key to go to the main menu from where a program can be selected either for EDITING or for EXECUTING. The display prompts the user to select either the EDIT or RUN modes.

```
┌─────────────────────────┐
│  MENU          START    │
│   ⇧                     │
└─────────────────────────┘
```

The cursor at the bottom can be moved to point at either of the options. Use the ⬚ ⬚ cursor keys to position the cursor. The selection is effected by pressing the ENTER key.

How to Erase the Memory:

If user wishes to Erase the previously Edited / Run Programs, he can do so by following these steps.

1. First Switch off the Machine.

2. Press & Hold Down the **ENTER** Key.

3. Now switch **ON** the Machine and release the key.

4. The Display Panel Reads "**RESET MEMORY: NO** ". By default this

   Option is set to "NO". Select "**YES**" and Press **ENTER.**

5. You can notice the Progress Bar in the Display Panel. Once the Erasing is over, the display shows the MAIN MENU, and user can continue Creating/ Editing New Programs as before.

BELT / SLIDER or TAPE/WIRE Selection:

Either Belt/Slider or Tape/Wire type depending upon the mechanical arrangement and requirement can be selected one time.

To change the operation mode Belt / Slider or Tape/Wire, user can do following steps.

1. First Switch off the Machine.

2. Press & Hold Down the **STOP** Key.

3. Now switch **ON** the Machine and release the key.

4. The Display Panel Reads,

```
┌─────────────────────────────┐
│  BELT        SLIDER         │
│  █                          │
└─────────────────────────────┘
```

OR

By default the cursor blinks at the previous selection.

User can select the desired mode by making use of **Left** and **Right** (◄/ ►) arrows provided on key panel and press **ENTER**.

```
┌─────────────────────────────┐
│  TAPE          WIRE         │
│  ■                          │
└─────────────────────────────┘
```

CREATING / EDITING A PROGRAM:

If the user needs to create / modify a program, then he has to select EDIT mode from the main menu. Upon pressing the enter key the display shows,

```
┌─────────────────────────┐
│  PROG TO EDIT: 000      │
└─────────────────────────┘
```

Individual programs are identified by their numbers. Up to 499 programs can be stored in the memory.

Enter the program number that is to be edited or created and then press the ENTER key to access the parameters.

Note:

In order to move between the digits of the menu use (◄/ ►) keys. In order to Increment/ Decrement the numbers use ▲/▼ keys .In order to move between the Menus use ENTER key for next and STOP key for previous menu .To save the data and return to main menu use START switch.

Description of the Menus:

The following menus are opened sequentially to facilitate the editing of the program parameters.

MENU: 1

```
PROG:001 MENU:01
TOT TURNS: 00000
```

The total number of turns to be wound on the core is specified in this menu. A maximum of 99999 turns can be programmed. Any non-zero value is accepted as valid. Otherwise the user is alerted by the message "INVALID DATA! … ".

Enter the desired number of turns and press enter to accept and go to the next menu.

For Taping machine with Tape selection the menu 1 will have the option of programing the numbers of layers instead of turns with following display.

```
PROG:001 MENU:01
     LAYERS: 00
```

.

MENU: 2

```
PROG:001 MENU:02
DEACC TURNS: 000
```

Deceleration Turns is used to reduce the speed of the motor before the completion of the winding or loading process. Hence the user has to enter the number of turns before which he has to reduce the speed of the motor. Deceleration Turns should be less than the Total Turns. Press ENTER key to accept the parameter values and to go to the next menu.

Pressing the START key will terminate the editing process. The values changed so far will be updated and stored back in memory. This feature is used as a quick exit and is useful in saving time if only a few parameters are to be edited

The scrolling back feature allows the possibility of reopening any of the previous menus for re-editing. The current menu will be opened again immediately after pressing the ENTER key.

MENU: 3

```
PROG:001 MENU:03
CORE OD: 00.00mm
```

Enter the actual Outer diameter of the winding core in millimeters. Outer diameter has a range greater than inner diameter to finished outer diameter of 45.00mm. Press ENTER key to accept the parameter values and to go to the next menu.

MENU: 4

```
PROG:001 MENU:04
CORE ID: 00.00mm
```

Enter the actual Inner diameter of the core in millimeters. Inner diameter has a range greater than finished inner diameter (08.00mm) to less than outer diameter. Press ENTER key to accept the parameter values and to go to the next menu.

MENU: 5

```
PROG:001 MENU:05
CORE HT: 00.00mm
```

Enter the actual Core Height in millimeters. Core Height has a range greater than 00.00mm to finished core height of 20.00mm. Press ENTER to accept the programmed parameter values and go to the next menu.

MENU: 6

```
PROG:001 MENU:06
ROLLER SIZE:00mm
```

Enter the actual Roller Diameter in millimeters. Roller Diameter has a range 10mm to 20mm. Press ENTER to accept the programmed parameter values and go to the next menu.

MENU: 7

```
PROG:001 MENU:07
WIRE DIA:0.000mm
```

It specifies the actual Diameter of the winding wire in mm. Wire Diameter has a range 0.050mm to 0.999mm. Press ENTER to accept the programmed parameter values and go to the next menu.

MENU: 8

```
PROG:001 MENU:08
PITCH:0.000mm
```

It specifies the actual winding pitch in mm. Pitch has a range 0.050mm to 0.999mm. Press ENTER to accept the programmed parameter values and go to the next menu.

MENU: 9

```
PROG:001 MENU:09
INDEX DIR: CCW/CW
```

It specifies the direction of rotation of the winding core as the winding progresses.   Default direction is clockwise. Pressing the ☐ key changes the option to counter-clockwise and pressing the ☐ key toggles it back to clockwise. Press ENTER to accept the programmed parameter values and go to the next menu.

MENU: 10

```
PROG:001 MENU:10
WIND SPEED: 00%
```

Speed at which the winding to be done is specified in terms of percentage of the top speed. 00% corresponds to the minimum speed and 99% corresponds to the maximum speed. Use ☐ (up) and ☐(down) keys to enter the required value and press ENTER to accept the programmed parameter values and go to the next menu. Operator can also change the speed while winding.

MENU: 11

```
PROG:001 MENU:11
LOAD SPEED: 00%
```

Speed at which the loading to be done is specified in terms of percentage of the top speed. 00% corresponds to the minimum speed and 99% corresponds to the maximum speed. Use ☐ (up) and ☐(down) keys to enter the required value and press ENTER to accept the programmed parameter values and go to the next menu. Operator can also change the speed while loading.

MENU: 12

```
PROG:001 MENU:12
JOG SPEED: 00%
```

Speed at which the loading and winding occurs when the JOG option is selected by JOG SWITCH. It is specified in terms of percentage of the top speed. 00% corresponds to the minimum speed and 99% corresponds to the maximum speed. Use ▲ (up) and ▼ (down) keys to enter the required value and press ENTER to accept the programmed parameter values and go to the next menu.

MENU: 13

```
PROG:001 MENU:13
SEG ANGLE: 000 DG
```

For segmental winding on the core, the Segment Angle is programmed in degrees. Use ▲ (up) and ▼ (down) keys to enter the required value and press ENTER to accept the programmed parameter values and go to the next menu.

The winding on the core will be confined to the angle specified. For Segment Angle > 000 the core changes its index after specified angle is wound and continues till tot turns. For Seg Ang = 000 the core rotates in specified index direction only.

MENU: 14

```
PROG:001 MENU:14
AUTO LENGTH: YES
```

Calculation of the required length of wire to wind the specified number of turns can be done manually or the computer can automatically do the computations. The default option is the manual calculation. Auto length calculation can be selected by pressing the ▲ (up) key and then pressing ENTER.

MENU: 15

```
PROG:001 MENU:15
LENGTH: 000.0mtr
```

The length of the wire required to wind the specified turns has   to be specified so the wire can be loaded on to the shuttle   before winding can be started. If auto length was selected in the previous menu, the length is calculated automatically   and displayed in the current menu. If not whatever value was stored previously will be displayed. In any case the displayed value can be changed and the changed value can be stored by pressing ENTER key.

MENU: 16

```
PROG:001 MENU:16
LD DEACC: 0.0mtr
```

While loading the wire on to the shuttle the deceleration is applied so the loading slows down at the end. The deceleration is specified in terms of length in meters. Fractional values can also be programmed. If suppose the total wire length is 4 m & the user enters LOAD DEAC as 1 m then the speed of the machine will decreases after a length of 3m of wire is loaded onto the shuttle.

MENU: 17

```
PROG:001 MENU:17
TAP[01] AT: 0000
```

This option is for the purpose of tapping in between the winding if necessary. If the user wants a tap after certain number of turns then he has to enter the value in the menu.

Up to six taps can be programmed. For each tap, the number of turns has to be entered. Use the cursor keys to enter the required tap turns and then press ENTER to accept and store the value. If further taps are not required, keep the turns at its default value 0000 and then press ENTER to exit from the taps menu.

MENU: 18

```
PROG:001 MENU:18
NEXT PROG: 000
```

Programs can be cascaded to be run consecutively in a loop. The starting program is called the parent program. In each program in the loop the next program number to be executed after the current program is given. In the last program in the loop the parent program number is given as the next program. (The next program number can also be given as 000).

Where cascading is not required, the default setting of 000 for next program will do.

MENU: 19

```
PROG:001   MENU:19
   NEXT WIND: YES
```

This is to initialize the winding operation of the next program after the completion of current program.

Use ▲ (up) key for YES and ▼ (down) key for NO and press ENTER to accept the programmed parameter values and go to the next menu.

MENU: 20

```
PROG:001 MENU:20
AUTO LD/WD: YES
```

This is to go to Load or Wind Start Menu automatically by skipping Load /Wind Select Menu, once the parameters are entered.

Use ▲ (up) key for YES and ▲ (down) key for NO and press ENTER to accept the programmed parameter values and go to the next menu.

MENU: 21

```
PROG:001 MENU:21
PROD RESET: NO
```

This is to reset the production count of the program.

Use ▲ (up) key for YES and ▼ (down) key for NO and press ENTER to accept the programmed parameter values and go to the next menu.

MENU: 22

```
PROG:001 MENU:22
CORE POSN:+000DG
```

This specifies the new position of the core after the finishing of a winding. Core will move the specified angle in CW or CCW according to (-) or (+) sign respectively.

Press ENTER to accept the programmed parameter values and go to the next menu.

The scrolling back feature can be used to go back and re-edit any of the previously edited menus.

Once the parameters are entered, they are stored in EEPROM and the display shows the below Menu.

```
SAVING DATA...
```

Selecting a Program to Run/Execute:

To Load / Wind, select the option RUN mode in main menu and press enter.

Enter the program number that to be run.

```
PROG TO RUN :000
```

```
      PROG 000
LOAD        WIND
```

Select load, then the wire is loaded onto the shuttle and wind after the loading is finished.

If the user selects LOAD option, display shows the below message. Now the user has to press the START key to start the loading.

```
LOADING… PG: 000
PRESS <START> ….
```

Once the loading of wire has initiated the display shows the below message. It displays the wire length that has been loaded onto the shuttle.

```
LOADING…. PG: 000
LENGTH: 0000 m
```

After completing the loading operation user selects the WIND option in the dialog box.

```
        PROG 000
LOAD        WIND
```

After selecting the wind option the display shows the below message.

```
WINDING… PG: 000
PRESS <START> ….
```

Once the winding of wire has initiated the display shows the below message. It also counts the number of turns.

```
 WINDING… PG: 000
TOT TURNS: 00000
```

Note:

If the selected program does not contain any valid data the machine displays the error message,

```
┌─────────────────────────┐
│                         │
│   NO DATA IN PROG…       │
│                         │
└─────────────────────────┘
```

Press **ENTER** key to go back and select a valid Program Number.

Note:

Winding or loading process can be **paused** by pressing **STOP** switch. And use left and right arrow key for core adjustment in Paused condition. Press **START** switch to **continue** the process else **ENTER** to **end** the process.

How to view RPM:

The RPM is nothing but TPM (Turns per minute). When the actual winding is going on, you can see RPM / TPM by pressing & holding down the start key. If you release start key the display will come back to original status where it will continue to update the current turns wound. The turns will be counted even when the TPM is displayed on LCD i.e. turns are always updated and accounted.

```
┌─────────────────────────┐
│   WINDING…   PG: 000     │
│       TPM: 0000          │
└─────────────────────────┘
```

How to get the Production Count?

Number of coils that are wound in a program can be viewed only after the initialization of the program and before the start of winding. In order to get the production count, press and hold the DIAM/PC key. The production count will be displayed in place of the turns display, leaving the key the display will show the turns again.

Some Important Online Features:

```
┌─────────────────────────┐
│   WINDING…  PG: 000      │
│     PROD: 000000         │
└─────────────────────────┘
```

Press ▲/▼ Keys to change speed of the machine Keys to change speed of the machine. The speed will be updated immediately and saved in the current program after pause or end of the program.

Press DIAM key to change the wire diameter when the machine is in pause condition. Corresponding LED glows while changing the wire diameter.

Press JOG key to Enable/Disable the JOG SPEED. Corresponding LED indicates the status of JOG SPEED.

Press LAYER key to Enable/Disable the LAYER STOP after each layer of winding. Corresponding LED indicates the status of LAYER STOP.

Press BRAKE key to Enable/Disable the BRAKE during the pause, layer stop, taping or after end of the winding. Corresponding LED indicates the status of BRAKE.

CTW – 100 SB

CTW – 200 SB

CTW – 200 GX

CTW – 100 T

Hook Winding Machine Manualy Wire Feeding

CTW – 300 GX

CTW – 300 T

CTW - 500/ 1000 GX

CTW – 200 SB
Rectangle Coil Machine

CTW – 200 GXR
Square / Rectangular Cores