



BECS-C19

(Chain-stitch Special Embroidery)

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OWNER'S MANUAL

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Index

1 Function	1
2 Main Technical Specifications	1
3 Relating Parameters and Their Setting Methods	2
4 Relating Operation of Special Embroidery	4
4.1 Introduction of Main Operation Interface	4
4.2 Set Automatic Color-changing	5
4.3 Pause of Special Embroidery	6
5 Special Embroidery Debugging	7
6 Procedure for Special Embroidery	8

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1 Function

The chain-stitch coiling function is to wind the thread round the core thread and sew it on the cloth with chain-stitch. The chain-stitch coiling function includes left coiling (clockwise coiling) and right coiling (counterclockwise coiling).

The chain-stitch taping function  is to fix the tape on the fabric with the chain-stitch. During the embroidery, the tape feeding wheel will rotate along with the D axis and keep in the direction contrary to the frame.

There are two ways to realize the chain-stitch special embroidery:

- All-independent Chain-stitch Special Embroidery: Each head has Type 57 Stepping motor (with encoder) to drive the M axis for rotation. The M axis motor in each head can be controlled individually. And this type of device can realize the left coiling, right coiling and the taping functions.
- Collective Chain-stitch Special Embroidery: The M axis in this method is controlled by the servo motor collectively. With the gear or the belt, the system can rotate the M axis at entire heads. This type of device can only realize the chain-stitch taping embroidery function.

2 Main Technical Specifications

- The max speed of the chain-stitch taping is 650rpm, the max speed of the coiling is 500rpm when the coiling ratio is at 1. When the coiling ratio is at other values, its max speed is same as that of the machine;
- In the independent chain-stitch special embroidery device, the head uses the Type 57 stepping motor (with encoder) at M axis. The special head can control the running of the head M axis motor according to the current embroidery status and the head indicators signals
- The independent chain-stitch special embroidery device supports the taping embroidery and the coiling embroidery, while the collective chain-stitch special embroidery only supports the chain-stitch taping embroidery;
- Function of power-off point memory in M axis: After power-on, the M axis will

automatically return to the working point at power-off.

- M axis manual test function.
- Support the function of coiling ratio
- Support the function of mending;

3 Relating Parameters and Their Setting Methods

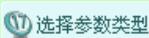
Press  in main interface, and then click the figures at the down right corner to select the parameter type. When the figure at that corner displays  选择参数类型 环绣参数, user can set the looping parameters. Move the icon to “Relating Special Para.” and press “” to have access to the interface of the parameters relating to the special embroidery (like figure 1).



Figure 1

Move icon to the corresponding parameter and press “” to input or select the corresponding.

After that, press  to confirm the saving. Pressing  is to quit the setting. These are the descriptions of the parameters at below:

G01 Taping Max Speed (300~365):

The Max speed of the chain-stitch taping; it functions mutually with “Max Speed” at looping.

G02 Taping Min Speed (250 ~ 400):

Set the min speed of the chain-stitch taping embroidery

G03 Taping Speed Shift Angle (1 ~ 180):

At chain-stitch taping, if the M axis speed is over this value, the main shaft will decelerate.

G04 Deceleration Ratio of Taping (1 ~ 4):

In chain-stitch taping, the deceleration degree is controlled by this parameter when the main shaft lowers its speed. The larger the value is; the larger deceleration degree will be.

G05 M Axis Back-off Angle: 0, 90

At flat embroidery or sequin embroidery, if this parameter is at 0°, the M axis will stop at horizontal position. If this parameter is set at 90°, the M axis will stop at the vertical position. When the head interval between the flat head and the special head is quite small, user has to set this parameter at 90° so as to avoid the crash between the flat head and the mechanism in M axis

G06 Taping M Axis Initial Angle (50 ~ 150):

It is the main shaft angle at the action of the M axis in chain-stitch taping. It can affect the quality of taping embroidery.

G07 M Axis Compensation at Chain-stitch Left Coiling (0 ~ 400):

In chain-stitch left coiling, user can adjust the M axis action order properly. Generally, this parameter is set at 100. This parameter is usually adjusted by the professional technician when the machine is produced.

G08 M Axis Compensation at Chain-stitch Left Coiling (0 ~ 400):

In chain-stitch right coiling, user can adjust the M axis action order properly. Generally, this parameter is set at 100. This parameter is usually adjusted by the professional technician when the machine is produced

G09 M Axis Compensation at Chain-stitch Taping (0 ~ 400):

At chain-stitch taping, user can set this parameter according to the related installation positions of the M axis and D axis. For independent chain-stitch special embroidery device, it is set at 100, while it is set at 0 for collective chain-stitch special embroidery device.

G10 Chain-stitch Coiling Ratio: 1,2,3,4

This parameter can change the winding density of the coiling embroidery. For an example, if the value is set at 2, the M axis will rotate for one round when main shaft rotates 2 rounds.

4 Relating Operation of Special Embroidery

4.1 Introduction of Main Operation Interface

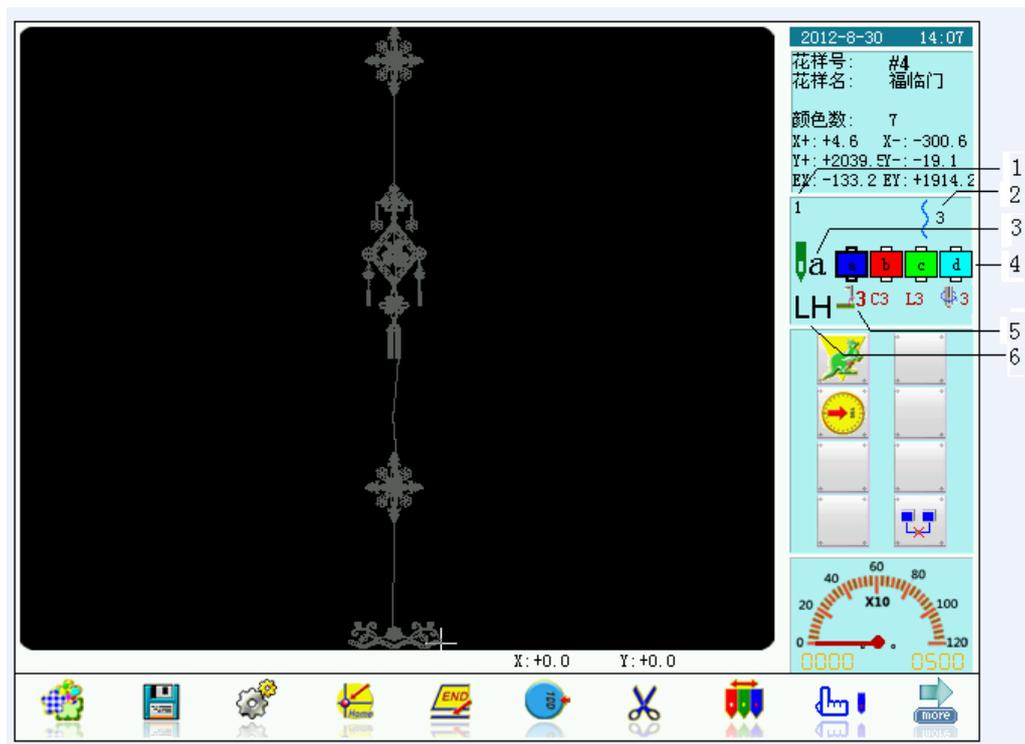


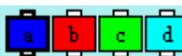
Figure 2

The figure 2 shows the main operation interface, in this interface:

1. Current Color-changing Time

2.  Current Thread-loosing Position

3.  Current Needle Position

4.  Display Color-changing Order

5. **LH** is the current stitch form type and the needle height. C: Chain-stitch; L: Looping; : Special Embroidery; : Left Coiling; : Right Coiling; 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 and H are the working position and detachment position of needle

height.

6.  is the stitch form type and the needle height corresponding to the color-changing order.

4.2 Set Automatic Color-changing

Press  in main interface to have access to the pattern color-changing order operation interface. Move icon to “Input & Repeat Order” or “Change Order” and press “” to have access to color-changing order input interface. After that, press “” to shift to looping head and then use number key to input the embroidery needle position (Figure 3). Use direction keys (Left & Right) to select the method for special embroidery; and use direction key (Up and Down) to select the needle height. Press “” to save the change, or press “” to quit. The interface after saving the change is shown as Figure 3:



Figure 3



Figure 4

4.3 Pause of Special Embroidery

When user performs chain-stitch special embroidery or the machine stops at the end point, the system will hint “Taping embroidery stops, please press Enter when ready” and wait for the processing of the tape. After that, user needs pull the bar to continue the embroidery, like figure 5.

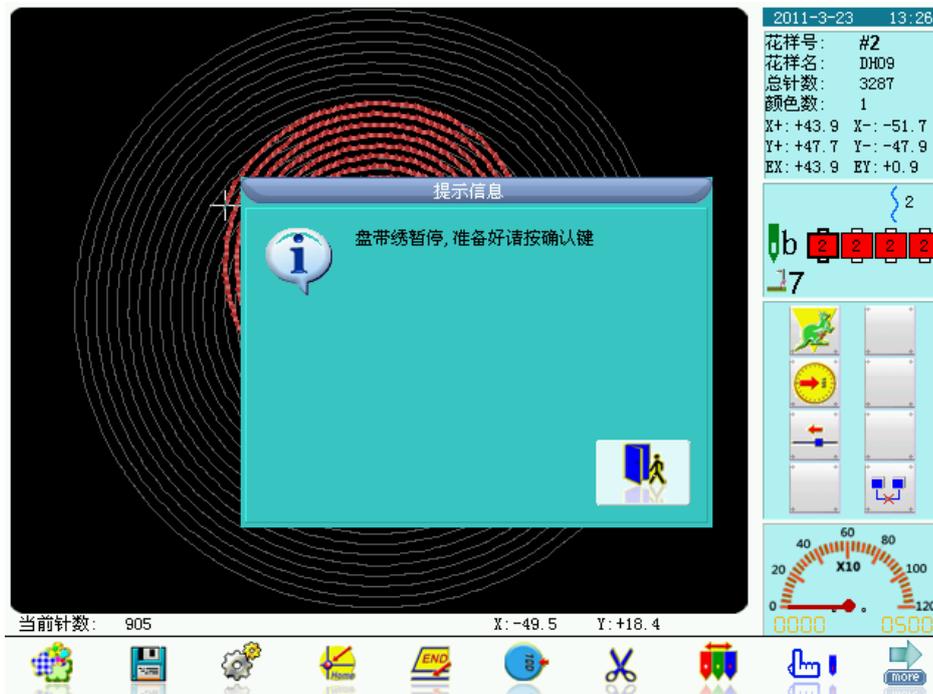


Figure 5

5 Special Embroidery Debugging

Shift current head to looping head (when the head figure on the main interface displays as ). Click  to select the corresponding item. The user can perform the manual operation of the looping and adjust the position of the looping head easily during the embroidery. The operations relating to the M axis mainly include M axis return to working point, M axis step moving and M axis manual rotation;

1. M Axis Return to Working Point

Press  in main interface, move icon to “M Axis to Working Point” and press “” to activate the dialogue window. In this window, press “” to have M axis to return to working point, or press “” to quit the operation. During the embroidery, when user pulls the bar for stop, the M axis will stop at the position A. If user performs the “M axis step moving”, the M axis will return to the origin. At this moment, the M axis shall return to position A at performing the operation of “M axis return to origin”.

2. M Axis Step Moving

Press  in main interface, move icon to “M Axis Step Moving” and press “” to activate the dialogue window. In this window, press “” to have M axis to stop at the zero point, or press “” to quit the operation. The M axis shall return to the electronic origin in the shortest way. If the M axis is at the origin at this moment, M axis will rotate a fixed angle at first and then rotate to the origin in contrary direction.

3. M Axis Manual Rotation

Press  in main interface, move icon to “M Axis Manual Rotation” and press “” to activate the dialogue window. If user moves icon to “M Axis to Left” and presses “”, the M axis will rotate to left for 18 degrees. And after twenty-times pressing, the M axis can just finish a circle and return to the origin. If user moves icon to “M Axis to Right” and presses “”, the M axis will rotate to right for 18 degrees. And after twenty-times pressing, the M

axis can just finish a circle and return to the origin. Press “  ” to quit the operation.

6 Procedure for Special Embroidery

1. Input pattern and perform the operations, like selection, transfer and edition, to the pattern according to the needs;
2. Change the relating parameter, set the color-changing order and select the embroidery method of the special embroidery;
3. check the chain-stitch coiling head and make sure it is in the normal status;
4. Pull the bar for embroidery.