

## 控制系统概述

### Control system overview

尊敬的客户，欢迎您使用浙江恒强科技股份有限公司研发生产的 A8 系列全自动电脑横机控制系统。  
Dear clients, welcome to use the A8 series automatic control system of computerized flat knitting machine developed and produced by Zhejiang Hengqiang Technology Co., Ltd.

本说明介绍如何操作和使用电脑控制系统。为确保正确的操作，请您仔细阅读操作说明。请将操作说明妥善保存在安全地点，以便随时查阅。

This document describes how to operate and use the computer control system. Please read the operation instructions carefully for correct operation. Please keep the operation instructions in a safe place for reference at any time.

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The final interpretation right of the operation instructions belongs to Zhejiang Hengqiang Technology Co., Ltd.

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## 系统主要技术参数

### Main specifications

机号 E Machine number E	E1.5-E18
编织速度 Knitting speed	Max: 1.2 m/sec Max: 1.2 m/sec
系统 System	1、2、3、4、6 1, 2, 3, 4, 6
色系 Color system	8 色 8 colors
选针 Needle selection	高速 3、4、5、6、8、10 段电磁选针 (双向 24V 磁保持) High-speed electromagnetic needle selection of 3, 4, 5, 6, 8, and 10 segments (dual-direction 24 V magnetic latching)
度目 Stitch	步进电机驱动、32、64 段电子记忆式控制 (每段 0-650 微调), 单独动作 Step motor drive, 32-segment and 64-segment electronic memory control (fine tuned by 0-650 for each segment), and independent action
摇床 Rock	伺服马达驱动, 左、右 1 英寸; 扩展至左、右 3 英寸 Servo motor drive by left and right movement of 1-inch; which extends to 3-inch to the left and right.
罗拉 Roller	步进电机驱动、力矩电机驱动 Step motor drive, and torque motor drive
传动方式 Drive method	同步齿形带, 往复式运转, 速度及幅宽由数值设定调整 Synchronous gear belt, reciprocating operation, speed and width are set and adjusted by number
主电机 Main motor	伺服电机 AC220V 1000W 1000rpm (1 级减速) Servo motor AC220V 1,000W 1,000rpm (Stage 1 deceleration) 伺服电机 AC220V 1000W 2500rpm (2 级减速) Servo motor AC220V 1,000W 2,500rpm (Stage 2 deceleration)
系统电压 System voltage	系统电压分交、直流 System voltage is divided into AC and DC voltage DC5V, DC12V, DC±24V DC5V, DC12V, DC±24V AC42V (储纬器选用), AC110V, AC220V AC42V (selected by weft accumulator), AC110V, and AC220V
CPU	多任务 A8 处理芯片 Multi-task A8 processing chip
内存 Memory	256 MB
存储扩展 Storage	SD 卡、网络 SD card, network



expansion	
自停装置 Auto-stop device	断纱、粗结、落布、撞针、浮目、倒卷布、左右安全门、后安全门、片数完成等。 Broken yarn, nub, doffing, needle hitting, mesh floating, reverse cloth rolling left and right safety doors, and rear safety door, completion of pieces.
自动程序 Automatic program	Windows 平台 HQ-1 恒强制版软件 Windows platform HQ-1 Hengqiang program software

## 钢丝起底板简介

### Introduction to wire pull board

起底板穿线梳改造之手摇横机用的穿线梳，将手动钢丝穿线采用步进电机驱动送丝轮自动进行挂布穿丝、脱圈抽丝归零动作，同时根据钢丝特性增加了首行织物起始、结束位置进行优化如提前等待、穿丝结束在花型外固定距离等效率提高动作。

The thread comb for the hand flat knitting machine is transformed from the pull board's thread comb, which replaces manual wire threading with the wire wheel driven by a step motor to achieve automatic cloth hanging and wiring, knocking over, wire withdrawing, and zero returning. In addition, the starting and ending positions of the first row fabric are optimized based on the wire characteristics (such as bringing the wait ahead of time, and fixing distance outside the pattern after threading) to improve efficiency.

自动钢丝穿线梳子装置较复合针勾线，由于每英寸密度大于复合针结构故织物牵拉受力均衡。

The draw-off tension of fabric is balanced on the automatic wire thread comb because its density per inch is greater than that on the composite needle thread hooking structure.

钢丝起底板装置在大多数适用的机号中可以省去复合针机构所需的废纱编织行，可直接按设定的起始、结束行裁剪编织降低生产成本、提高编织效率等。

In most applicable models, the wire pull board device can omit the waste yarn knitting row required in the composite needle mechanism, which can directly crop knitting based on set the start row and end row to cut production costs and improve knit efficiency.

当机号较大时，如 E14 及以上机型，由于针床头口尺寸小、起头编织密度紧，穿线钢丝的直径变细造成脱圈时回丝困难，容易钢丝断裂，建议增加若干密度放松的废纱行编织便于抽丝顺畅。

For models with a large number (such as E14 and above), the needle bar mouth is small, the start knitting density is tight, and the threading wire diameter is thin. As such, the wire is likely to break because it is difficult to return wires when knocking over. It is recommended to add several waste yarn rows with loose density for knitting to ensure smooth wire withdrawing.

#### ● 起底板挂布、穿线流程：

##### Cloth hanging and threading process on the pull board:

1. 起底板从零位上升到最高位，期间将对起底板零位、安全位、最高位(可选安装)信号进行过程检测。

1. Lift the pull board from the zero position to the highest position. During this period, signals for the pull

board's zero position, safety position, and highest position (optional) will be detected.

2.信号检测中零位、安全位信号必须有，最高位可选择安装，建议安装，检测更可靠。

2.During signal detection, zero position and safety position signals must be available, and the highest position is optional (which is recommended to ensure more reliable detection).

- 最高位、安全位：有  
Highest position and safety position: Available
- 安全位：有  
Safety position: Available

### 3.穿丝步骤

#### 3.Thread steps

- 钢丝挂布优化-打开  
“Optimize Cloth Hanging on Wire” - Enabled

在起底板上升到等待位置过程中，钢丝同时到花型编织区外等待，起底板最高位开始穿丝，穿丝幅宽按花型宽度+安全移出距离。

During the period when the pull board is lifted to the waiting position, the wire also waits outside the pattern knitting zone. The threading starts from the highest position of the pull board, and the threading width is based on the pattern width plus safety moving distance.

- 钢丝挂布优化-关闭  
“Optimize Cloth Hanging on Wire” - Disabled

穿丝行程按<钢丝结束行程>设定值执行。

The thread stroke is based on set value in <Wire End Stroke>.

### 4.起底板挂布牵拉至安全位。

#### 4.Hang cloth and draw off the pull board to the safety position.



起底板上升到最高位、挂布至安全位过程中均以位置模式执行，只有真正牵拉时切换成力矩模式。

Lift the pull board to the highest position and hang cloth to the safety position based on the position mode. Switch to the torque mode only during real draw-off.

## ● 穿线钢丝介绍

### Introduction to threading wire

步进电机控制盘式钢丝完成挂布穿线、脱圈抽丝流程。

The step motor controls the disc-type wire to complete cloth hanging, threading, knocking over, and wire withdrawing.

信号检测：

Signal detection:

- 一般设置有钢丝复位后的基准零位。  
In general, the setting includes the benchmark zero position after wire resetting.
- 穿线到达位置的检测信号。  
Detection signal when threading reaches a designated position.
- 钢丝送丝、抽丝运动过程中失步检测信号。  
Out-of-step detection signal during wire feeding and withdrawing processes.
  - ◆ 编码器动态检测  
Encoder dynamic detection
  - ◆ 钢丝断丝检测  
Wire break detection
- 起底板升降电机类型  
Lifting motor type of pull board
  - ◆ 90 伺服  
90 servo
  - ◆ 步进电机  
Step motor
  - ◆ 力矩电机  
Torque motor

## 安全注意事项

### Safety precautions

使用本控制系统时，为杜绝人身意外伤害的风险，应严格遵守下列基本的安全预防措施：

In order to eliminate the risk of personal accident, be sure to follow the basic safety precautions when using this control system:

浙江恒强科技股份有限公司  
Zhejiang Hengqiang Technology Co., Ltd.

全自动电脑横机控制系统操作说明-全触摸

Operating Instructions of Automatic Control System of Computerized Flat Knitting Machine - Full Touch

1	本机只限使用产品铭牌标明的电源类型。电网波动超过 $\pm 10\%$ 时，必须配备电力稳压器。 This machine can only use the power type indicated on the product nameplate. When the power grid fluctuation exceeds $\pm 10\%$ , a power regulator must be provided.
2	电源进线要按规定进行固定和安全防护措施，不能承受任何作用力。 The incoming line of power supply should be fixed and protected according to regulations, and should not be subject to any acting force.
3	设备必须连接接地线，接地不良将造成人员触电及影响本产品安全可靠的运行。 The equipment must be connected with the grounding wire because poor grounding will cause electric shock and affect the safe and reliable operation of this product.
4	禁止非电器专业人员对电气部件修理、调试，这将会降低设备的安全性能，扩大故障甚至造成人员伤亡和财产损失。 Non-electrical professionals are prohibited to repair and debug electrical components, which will reduce the safety performance of equipment, aggravate faults and even cause personal injury and property loss.
5	操作控制机箱里面的电器部件，必须要确保在断电的情况下进行，要保证操作人员的安全。 In order to protect the safety of operators, be sure to operate the electrical components inside the control cabinet after the equipment is powered off.
6	在机器运转时，禁止接触任何运动部件。否则可能会造成人员的伤害。 It is forbidden to touch any moving parts when the equipment is in operation. Otherwise, it may cause personal injury.
7	禁止电气设备工作在潮湿、粉尘、腐蚀性气体，易燃易爆气体的场所，否则可能会造成触电或火灾。 It is forbidden to use electrical equipment in damp places or places with dust, corrosive gas, flammable and explosive gases; otherwise, it may cause electric shock or fire.
8	禁止直接对控制器的输入输出回路进行绝缘测试，否则将直接造成电气设备损坏。 It is forbidden to directly conduct insulation test for the input and output circuits of the controller; otherwise, it will directly cause damage to the electrical equipment.
9	使用非本公司提供的零备件，极易引起火灾、电击和严重损坏的后果。 Do not use spare parts not provided by our Company as it is likely to cause fire, electric shock and serious damage.
10	请严格按本产品所标识的规格更换熔断器，以确保人员和财产的安全。 Please replace fuses in strict accordance with the specifications identified in this product to ensure the safety of personnel and property.



本公司对于未经授权擅自改动本系统产生的后果不负任何法律责任。  
Our company is not liable for the consequences due to unauthorized alteration of this system.

\* 本说明编纂参考主控版本：UV2S-V1.6-212.98(devel)

\* This description is compiled with reference to the master controller version: UV2S-V1.6-212.98(devel)

编纂：浙江恒强科技股份有限公司-研发中心

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## 主菜单

### Main menu





## 1. 进入编织 knitting

进入编织即编织运行主窗口，显示了当前编织花型的名称、当前行号、针位置、运行方向、CNT控制指令信息、PAT花板行等诸多信息，主要工作参数查看、修改等并提供了机器操作的复位、锁行、速度切换等功能按钮、厂标显示等。

Enter the main operation window of knitting, which displays the name of current knitting pattern, current row number, needle position, running direction, CNT control instruction information, PAT board row and other information. This window allows the user to check and modify the main working parameters, and provides such function buttons as reset, row locking, and speed switching buttons. The factory logo is also displayed on this window.

按纵向分了3块区域及功能按钮操作区。

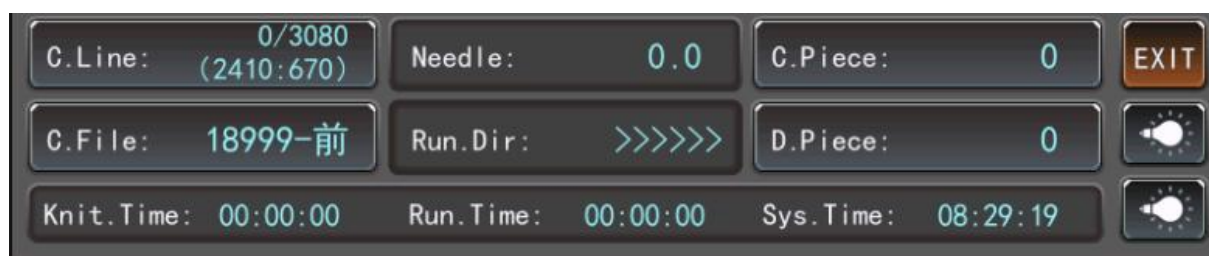
It is divided into 3 areas and function button operation area in the longitudinal direction.







## 1.1 区域分隔框-上 Zone separating box - Upper



## 1. 当前行

### C.Line(Current Line)

花型当前的行号及 CNT 总行数，使用 "/" 正斜杠符号分隔表示。

The current row number of the pattern and the total number of CNT rows, which are separated by the "/" symbol.

“/”左侧：当前编织行号。

Left side of “/”: Current knitting row number.

“/”右侧：CNT 总行数。

Right side of “/”: Total number of CNT rows.

\* 成组编织时左侧表示组中当前编织花型、右侧表示成组组名。

\* For grouped knitting, the left side indicates the current knitting pattern in the group, and the right side indicates the group name.

\* 当工作参数中‘收针优化 -> 打开’后，程序智能分析花型条件，如满足收针行合并优化规则后增加信息提示，原有的行号显示再拆分为上、下显示。

\* When “Casting off optimization” is enabled in the working parameters, the program will intelligently analyze the pattern conditions. If the optimization rules for combining the Casting off rows are met, add information prompt. The original row number display is split into upper and lower display.

上：当前行/CNT 总行数

Upper: Current row/Total number of CNT rows

下：括弧中未优化行数:优化行数，告知程序自动行优化后的统计信息。

Lower: Number of non-optimized rows in brackets: Optimize the number of rows, and inform the program of the statistics after automatic row optimization.

#### 备注：

#### Note:

起底板使能 -> 打开 复位后花型起始行号不一定是按 CNT 首行号显示，依据系统参数、工作参数的相关设置起始行号会有‘50001’/‘510001’/‘30001’等程序自动插入行显示。

Enable pull board -> Enabled: after resetting, the start row number of the pattern is not necessarily displayed according to the CNT first row number. For related settings based on system parameter and working parameter, the starting row number will be automatically inserted with ‘50001’/‘510001’/‘30001’ by the programs.

### ● 直选、非沉针式机型自动插入行

#### Automatic row insertion for direct-selection, non-needle sinking type models

- 针对直单/直双/直三等直选简易机型部分山板支持同行吊目、对翻自动拆分系统、行后插入了程序控制的行号，以当前行号后增加小数点行号便于查看在那些行中自动插入了程序控制

行号。

For direct-selection simple models like single, dual, and triple direct selection, some knitting plates support same-row tuck, and automatic splitting system for transferring. The program-controlled row number is inserted after the row, and the decimal point row number is added after the current row number to facilitate the checking of which rows are inserted automatically with the program-controlled row number.

例如:

Example:

■ 直双山板右行 ->, 右系统<编织+吊目>、左系统<编织>, 此时根据拆分规则左系统<编织>必须拆分至下一次。

The dual-direct selection knitting plate moves to the right ->, right system <knitting + tucking>, left system <knitting>. At this point, the left system <knitting> must be split until the next time according to the splitting rule.

.1 行 -> 当前行右系统拆分 <编织+吊目> 中的 H 位吊目选针、左系统拆分 A 位选针。

.1 row-> In the current row, the right system splits the Position H tuck selection in <knitting + tucking>, and the left system splits the Position A needle selection.

.2 行 <- 自动插入<空行>返回。

.2 rows <-auto insert <empty row> and return.

.3 行 -> 完成 左系统<编织>。

.3 rows-> Complete the left system <knitting>.

■ 插入的行号显示格式: XXX.1->XXX.2->XXX.3。

Inserted row number display format: XXX.1->XXX.2->XXX.3.

■ 起底板使能-打开后, 当普通罗拉机花型在工作参数中设置有行裁剪后(编织起始行、编织结束行设置等), 将按裁剪后的行号显示便于知道该花型的裁剪情况。

After "Enable pull board" is enabled, when the common roller pattern is set with row cutting in the working parameters (setting of knitting start row, knitting end row, etc.), it will be displayed according to the cut row number to allow for better understanding of the cutting situation of the pattern.

## ● 快捷跳行

### Quick row skipping





单击当前行按钮弹出“跳行”设置窗口，输入跳转行号，单击确认后，系统自动进入复位流程，完成后机头根据跳行的奇、偶行经 1-2 行预选空跑后跳至设定行数。

Click the Current Row button to pop up the “Skip” setting window, and enter the skipping row number. After clicking OK, the system automatically enters the reset process. After completion, the carrier skips to the set row number according to the skipped odd and even rows after idle operation of 1-2 rows for pre-selection.

\* 空跑预选是否执行与工作参数中‘单口锁定’以及跳行号有关，锁定左系统并且是奇数行时对于 > 1 系统时可预选、复选直接工作，无需空跑预选。

\* Whether to perform idle operation for pre-selection is related to the “Single-port lock” and the skipped row number in the working parameters. When the left system is locked and the odd rows are used, the pre-selection and re-selection can work directly when the number of rows is > 1 in the system, and idle operation is not required for pre-selection.

\* 编织系统是单系统时，因预选、复选选针器共用同一个则必须有预选处理。

\* When the knitting system is a single system, pre-selection is required because the pre-selection and re-selection share the same needle selector.

## ● 直选跳行

### Direct selection row skipping

1. 机器配置中 <禁止直选型清针行> = <打开>，复位完成后将禁止预选模式的空跑行，奇数行跳



行的前两个空行将被禁止，复位完成后直接进入跳转行号进行编织。

In the machine configuration, enable <Needle clearing row for prohibited direct selection>. After the reset is completed, the idle operation rows in pre-selection mode will be prohibited, and the first two empty rows of odd skipped rows will be prohibited. After the reset is completed, directly enter the skipped row number for knitting.

2. 偶数跳行，空跑 1 行。

For even rows, skip and perform idle operation for 1 row.

## 2. 针位置

### Needle(Needle position)

以安装在机架左侧针零位传感器为基准零位的绝对针位置坐标。

The needle zero position sensor installed on the left side of the rack serves as the absolute needle position coordinates of the reference zero position.

右行 ->: 针位置连续递增

Move to the right ->: The needle position increases in a row.

左行 < -: 针位置连续递减

Move to the left < -: The needle position decreases in a row.

花型针位置动态显示范围是按当前行、下一行的编织范围叠加，也就是机头运行到两侧的换向点，超出换向点外移动机头‘针位置’将不再变化。

The dynamic display range of pattern needle position is superimposed according to the knitting range of the current row and the next row, that is, when the carrier runs to the reversing points on both sides, the “needle position” of the carrier moving beyond the reversing point will no longer change.

编织速度较快时两侧换向点的针位置数值显示肉眼无法看清，如果需要查看的话可以将拉杆置于慢动位或者图标切换成乌龟状态、或者直接手动推移机头观察换向符号变化点。

When the knitting speed is fast, the numerical display in the needle position at the reversing points on both sides cannot be clearly seen by naked eyes. To check it, put the pull rod in slow motion position or switch the icon to slow state, or manually push the carrier to observe the change point of reversing symbols.

### ● 精确查看换向点位置

#### Accurate viewing of the reversing point position

手动推移机头至针位置不再变化后继续朝一侧微微推动机头直到运行方向箭头变化，此时的位置是此行的换向点。

Manually push the carrier until the needle position is no longer changed and then continue to push the carrier slightly to one side until the operation direction arrow changes. This position is the reversing point of this row.

### ● 针零位、左限位合并

#### Needle zero position and left limit combination

当配置文件中<零位左限位合并>=<零位>，即针零位、左限位合并共用同一个传感器，系统参数中所有其它以针位置设置的项均不能再出现\*\*负数\*\*，设置机头运行超程软保护的左限位不能使用负数这种设置。



When <Zero position and left limit combination> = <Zero position> in the configuration file, that is, the needle zero position and left limit position are combined and share the same sensor. All other items set by needle position in the system parameters can no longer appear \*\* negative number \*\*, and the negative number is not available for the left limit setting of over-range soft protection for carrier operation.

当配置文件中<零位左限位合并> = <自定义>, 系统参数中将增加显示左限位、针零位独立设置项, 此时的左限位安装位置在针零位传感器的左侧, 设置数值将以\*\*负数\*\*显示。

When <Zero position and left limit combination> = <Customized> in the configuration file, the independent setting item for the left limit and needle zero position will be added in the system parameters. At this point, the left limit installation position is at the left of the zero position sensor, and the setting value will be displayed as \*\* negative number \*\*.

### 3. 完成件数

#### C.Piece (Number of completed pieces)

显示当前编织花型、成组编织等完成的件数累计。

Display the cumulative number of completed pieces by current knitting pattern, grouped knitting, etc.

完成件数、设定件数设置, 方便操作设计在产量设置同一窗口中。

C.Piece(The number of completed pieces) and D.Piece( the number of setting pieces) can be set to facilitate the setting of output in the same window during operation and design.







- **完成件数修改**

**Modification of number of completed pieces**

单击完成件数或设定件数任意一个按钮处，弹出产量设置窗口进行修改。

Click on any button for the number of completed pieces or the number of setting pieces to pop up output setting window for modification.



浙江恒强科技股份有限公司  
Zhejiang Hengqiang Technology Co., Ltd.

全自动电脑横机控制系统操作说明-全触摸

Operating Instructions of Automatic Control System of Computerized Flat Knitting Machine - Full Touch



编纂: 浙江恒强科技股份有限公司-研发中心

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完成件数由系统程序自动按花型 CNT 的结束标记进行计数，一般情况下为花型的结束行。对于起底板使能-打开，普通罗拉机花型按工作参数->编织结束行的设置标记结束。

The number of completed pieces is automatically counted by the system program according to the end mark of pattern CNT, which is generally the end row of pattern. When <Enable pull board> is enabled, common roller machine pattern will end according to the setting mark for the working parameters -> knitting end row.

成品检验有废片重新补片时，要对已完成的件数重新进行修改，单击完成件数显示区域后弹出‘请输入密码’输入‘8888’确定后弹出数值修改软键盘进行修改，按确定按钮结束，取消按‘退出’按钮。

When there are scrapping pieces in finished product inspection, the number of completed pieces should be modified again. Click the display area for the number of finished pieces, and a prompt stating “Please enter password” appears. Enter “8888”, and the numerical modification soft keyboard will appear for modification. Press the OK button to finish, and press the “Exit” button for cancellation.

\* 完成件数、设定件数清零操作:

\* Clearing of the number of completed pieces and the number of setting pieces:

‘产量设置’界面点击‘清除’按钮后再点‘确认’执行件数清零操作。

In the “Output setting” interface, click the “Clear” button and then “OK” to clear the number of pieces.

## 4. 文件名

### C.File(File name)

显示当前编织花型的名称，支持长文件名显示，当长度超出显示范围时程序将自动以滚动方式、黄色字体显示。

Display the name of the current knitting pattern, and support long file name display. When the length is beyond the display range, the program will automatically display the file names in scroll and yellow font.

#### ● 文件管理快捷入口

##### File management shortcut entry

单击文件名按钮后直接跳转至‘文件管理’窗口。

Click the File Name button and skip directly to the “File Management” window.

## 5. 运行方向

### Run.Dir(Operation direction)

显示机头实际运行方向，机头到换向点后自动切换方向箭头。

Display the actual operation direction of the carrier, and automatically switch the direction arrow after the carrier reaches the reversing point.

右行 : >>>>>>

Move to the right: >>>>>>

左行 : <<<<<<

Move to the left: <<<<<<

## 6. 设定件数

### D.PIELE(Number of setting pieces)

范围: 0 - 30000 (件)。

Scope: 0-30,000 (pieces).

设定当前编织花型的生产件数, 该设置窗口与完成件数共用。

Set the number of production pieces of the current knitting pattern, and this setting window is shared with the number of completed pieces.

‘0’: 表示无限编织, 大于零的设置在设定件数完成后自动停车并弹出‘多片停车’蜂鸣提示。

‘0’: Indicates infinite knitting. If the setting is greater than zero, the machine will automatically stop after the number of setting pieces is completed, and pop up the buzzer prompt of “multi-piece stopping”.

非起底板机型 (罗拉机), 机头停车位置在花型结束行外。

For non-pull board models (roller machine), the stopping position of the carrier is outside the end row of the pattern.

起底板机型, 机头停车在左限位或左限位+针零位合并位。

For pull board models, stop the carrier at left limit or combined position of left limit + needle zero position.

#### ● 设定件数操作

##### Number of setting pieces

单击设定件数, 出现弹出‘产量设置’界面, 点击设定件数区域, 弹出数字型软键盘输入设定件数, 点‘确定’完成设定件数操作。

Click to the number of setting pieces, and the interface of “Output Setting” will pop up. Click the area for the number of setting pieces, and the digital soft keyboard will pop up to input the number of pieces. Click “OK” to complete the setting of the number of pieces.

## 7. 编织时间

### Knit.Time(Knitting time)

显示花型上一片不停车编织运行用的时间, 该时间统计是扣除了停车等时间。

Display the running time for non-stop knitting of the previous piece of the pattern, for which the stopping time has been deducted.

## 8. 运行时间

### Run.Time(Running time)

当前花型不停车编织运行的时间, 该时间统计扣除了停车等时间。

Display the running time for knitting of the current pattern without stopping, for which the stopping time has been deducted.



## 9. 系统时间

### Sys.Time(System time)

显示当前机器设定的时间，修改系统时间详见【8-系统维护->设置系统时间】。

Display the time set by the current machine. For how to modify system time, please refer to [8-System Maintenance-> Setting System Time] for details.

系统时间是系统重要的参数之一请务必校准，平时需要观察是否有异常，系统时间是由主板电池供电，电池电压过低将影响时间运行准确性。

Be sure to calibrate the system time as it is one of the important parameters of the system. Observe whether there is any abnormality during daily usage. System time is powered by the main board battery. If the battery voltage is too low, it will affect the time accuracy of operation.

主板电池规格：3V CR2032 锂锰电池。

Main board battery specifications: 3V CR2032-lithium manganese battery.

## 1.2 区域分隔框-中

### Zone separating box-Middle



此区域主要显示当前编织花型的 CNT 控制指令、PAT 花版行、运行段度目值等。

This zone mainly displays CNT control instructions of current knitting pattern, PAT row, stitches in the working segment, etc.

## 1. 花板行、A、H

### P.Line、A、H(Pattern board row, Positions A and H)

花板行：显示当前编织行所对应的 PAT 行号，编织行不等同于花板行，花版行是每个编织系统前、后控制指令的行。

Pattern board row: Display the PAT row number corresponding to the current knitting row. The knitting row is not equal to the pattern board row, which is the row based on the control instructions before and after each knitting system.

空行、空编织系统（前、后均无控制指令）等花版行显示‘0’。

Empty row, empty knitting system (no control instructions before and after the knitting system) and other pattern board rows display ‘0’.

A	<p>CNT 指令中 A 位选针色码。 Position A needle selection color code in CNT instruction.</p> <p>A 位色码一般用于控制指令中的编织、翻针等选针。 Position A color code is generally used for the knitting, reversing and other needle reversing in control instructions.</p> <p>色码范围：[0-9]、[A-F] 共 16 个。 Color code range: There are 16 color codes in total, including [0-9] and [A-F].</p>
H	<p>CNT 指令中 H 位选针色码。 Position H needle selection color code in CNT instruction.</p> <p>H 位色码一般用于控制指令中的吊目、二段吊目、接针、压针等选针。 Position H color code is generally used for the tucking, two-segment tucking, needle connection, needle pressing and other needle selection in the control instructions.</p> <p>色码范围：[0-9]、[A-F] 共 16 个。 Color code range: There are 16 color codes in total, including [0-9] and [A-F].</p>

## 2. 纱嘴

### Yarn

查看、编辑系统当前花型使用的纱嘴信息等。

View and edit the yarn feeder information used by the current pattern of the system.



图示：纱嘴编辑入口

Illustration: Yarn feeder editing entrance



图示: 纱嘴编辑

Illustration: Yarn feeder editing

除嵌花组织外，一个编织系统一行编织中最多可携带 2 把(主纱+宽纱嘴)。

In addition to intarsia, one knitting system can carry up to 2 yarn feeders in one row (main yarn + wide yarn feeder).

嵌花组织(无虚线提花)一行中可以显示多把纱嘴号。

Intarsia weave (jacquard without dashed lines) can display multiple yarn feeder numbers in one row.

单击运行窗口‘纱嘴’按钮，弹出‘纱嘴编辑’窗口可查看、修改及扩展功能按钮(宽纱嘴、张力补偿、纱嘴组)等。

Click the “Yarn feeder” button in the running window, and the “Yarn feeder editing” window will pop up to view, modify and expand the function buttons (wide yarn feeder, pulling force compensation, yarn feeder group), etc.

纱嘴编辑窗口由纱嘴初始位置、纱嘴交换设置、底部功能按钮组成。

The yarn feeder editing window consists of yarn feeder initial position, yarn feeder exchange setting and bottom function buttons.

纱嘴初始位置：

Initial position of yarn feeder:

纱嘴左、右初始位置排列显示即根据排列位置安排纱嘴、穿线等。

Display the left and right initial positions of yarn feeders, that is, the yarn feeder and threading are arranged according to the arrangement positions.

系统自动扫描花型中纱嘴首次使用的行，以此奇数在左、偶数在右原则。

The system automatically scans the rows where the yarn feeder is used for the first time in the pattern based on the principle of arranging odd numbers on the left and even numbers on the right.



对于起底板使能-打开，普通花型有编织起始行裁剪的情况，系统将根据行裁剪情况重新扫描并显示正确的纱嘴排列。

If <Enable pull board> is enabled, and the common pattern has its knitting start row cut, the system will re-scan the row cutting and display the correct yarn feeder arrangement.

白色字体的纱嘴号表示花型 CNT 中使用的纱嘴号、数量等，灰色表示不使用的纱嘴。

The yarn feeder number in white font indicates the yarn feeder number and quantity used in pattern CNT, while the gray font indicates the yarn feeder not used.

纱嘴交换设置：

Yarn feeder exchange setting:

交换纱嘴，将 CNT 中的纱嘴号临时交换成其他纱嘴号、有纱嘴同号冲突检测机制，冲突报警提示时交换不会生效直至选择正确的纱嘴号。

Exchange yarn feeders by changing the yarn feeder number in CNT temporarily to other yarn feeder numbers. A detection mechanism for the same yarn feeder number is provided, which will prompt that the exchange will not take effect in the event of conflict in the yarn feeder numbers



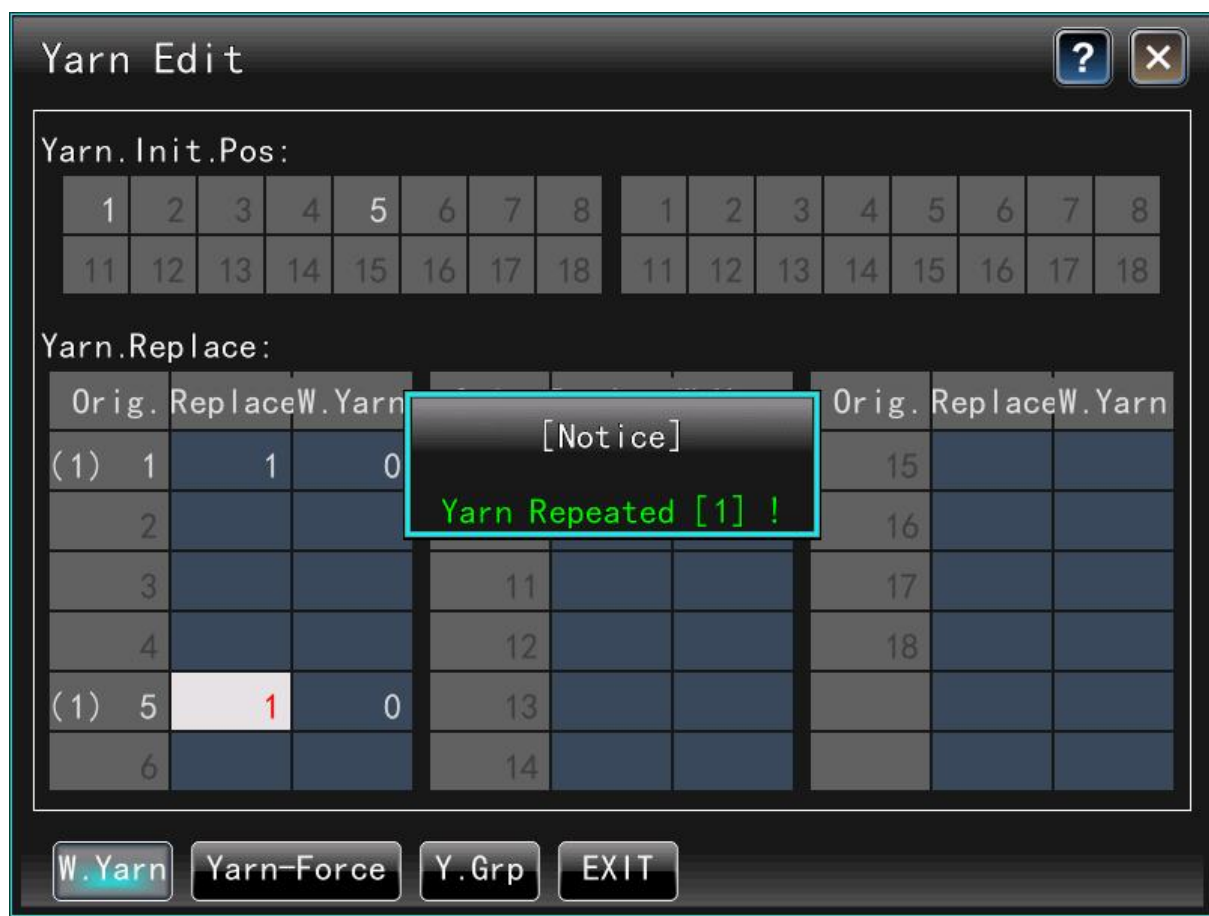
until the correct yarn feeder number is selected.

纱嘴交换只应用于当前横机，初始花型依然存在当输出至 U 盘后不会带出交换信息。

Yarn feeder exchange is only applied to the current flat knitting machine, and the initial pattern still exists. When the pattern is output to U disk, it will not bring out the exchange information.







### 宽纱嘴 Wide yarn feeder

宽纱嘴的特点是乌斯座上携带纱嘴的开口宽度大于正常编织的开口宽度，其与主纱嘴配合使用时垫纱的位置不同让2把带有不同颜色的编织行出现在织物的正、反两面上。

The wide yarn feeder features that the opening width of the yarn feeder on the yarn feeder base is larger than that of normal knitting. When it is used together with the main yarn feeder, two knitting rows with different colors will appear on the front and back sides of the fabric due to the different positions of the guide bar.

通过系统程序绑定宽纱嘴（主、副纱嘴），设置前需单击激活底部的宽纱嘴功能按钮。

Bind the wide yarn feeder (main and auxiliary yarn feeder) through the system program, and click the button to activate the wide yarn feeder function at the bottom before setting.

宽纱嘴激活后纱嘴交换设置标题下的宽纱嘴栏自动在已有纱嘴号后填充全零，根据需要选择设置主纱对应的宽纱嘴号。

After the wide yarn feeder is activated, the wide yarn feeder bars under the yarn feeder exchange setting title are all automatically filled with zero after the existing yarn feeder number. Select and set the wide yarn feeder number corresponding to the main yarn as required.

上图所示1号纱嘴绑定了8号宽纱嘴，表示当1号纱嘴工作时同时绑定8号纱嘴一起动作。

As displayed in the above figure, No.1 yarn feeder is bound with the No.8 wide yarn feeder, which means that when No.1 yarn feeder works, the No.8 yarn feeder is bound for working together.

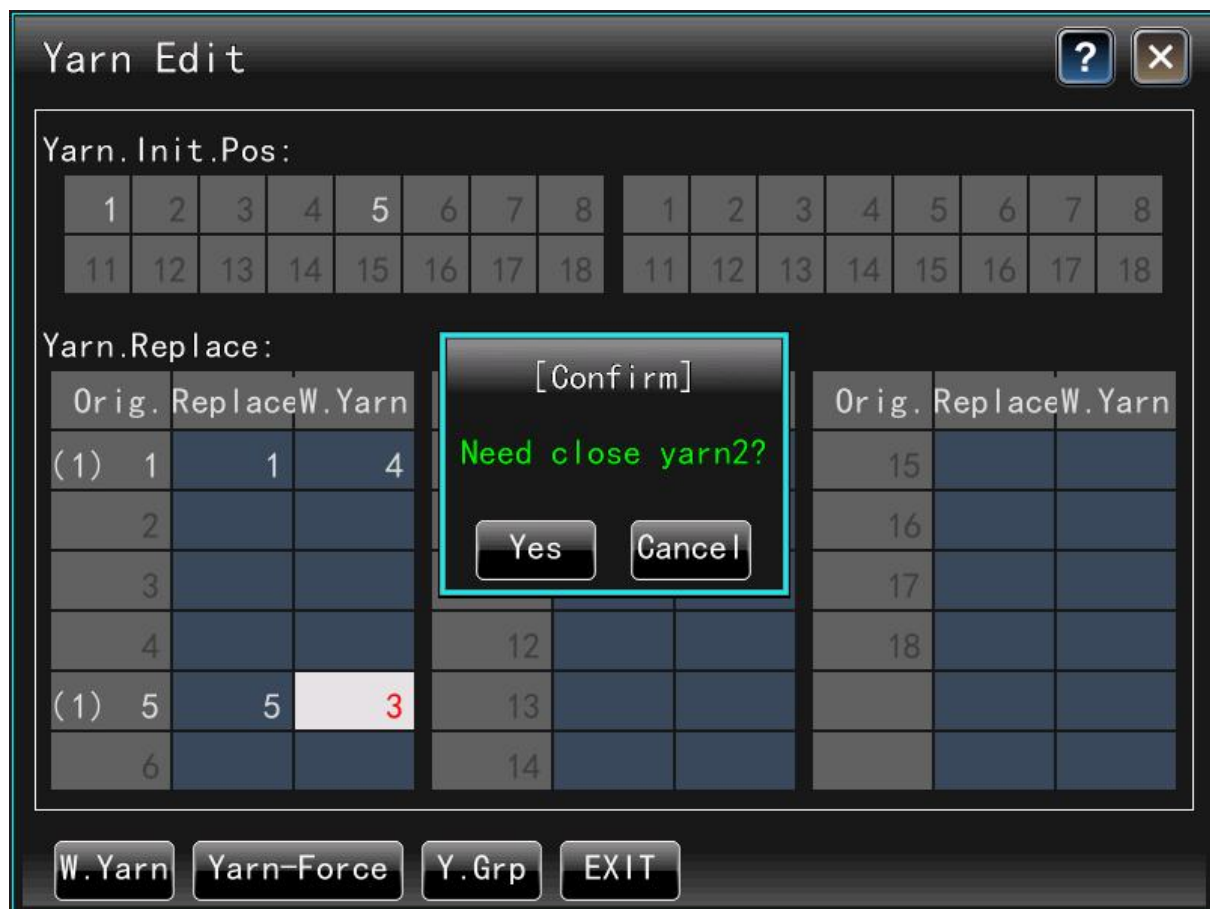
关闭宽纱嘴绑定可再次单击‘宽纱嘴’按钮，按钮将恢复无增亮显示并弹出提示‘**是否确认关闭宽纱嘴?**’单击确定关闭宽纱嘴设置并恢复空白显示。

To close the wide yarn feeder binding, click the “Wide yarn feeder” button again, and the button will return to non-bright display and a prompt stating that “**Need close yarn2?**” will pop up. Click OK to close the wide yarn feeder setting, and restore to empty display.

宽纱嘴设置信息在关闭后，系统在后台仍保存该花型的设置信息，当再次单击宽纱嘴按钮后将显示上次关闭前的设置信息，供用户了解曾经有过的设置记录。

After the wide yarn feeder setting information is Disabled, the system will still save the setting information of the pattern in the background. When the Wide Yarn Feeder button is clicked again, the setting information before the last closing will be displayed for the user to learn the previous setting records.





一个系统正常编织最多可以携带 2 把纱嘴。

In general, one knitting system can carry up to 2 yarn feeders.

一个系统纱嘴空踢可以 2 把以上。

One system can empty kick more than 2 yarn feeders.

### 电机纱嘴

Motor yarn feeder

目前通用结构为 1 个电机控制 2 把纱嘴的经济型方案。

At present, the general structure is an economical scheme in which one motor controls two yarn feeders.

花型输入时 CNT 中同时有空踢 2 把及以上、主纱、宽纱嘴组合的逻辑检查有提示问题行号。

During pattern input, when there are 2 or more yarn feeders under empty kick in the CNT at the same time, the row number in question will be prompted during the logic inspection of the combination of the main yarn feeder and wide yarn feeder.

下位机中设置宽纱嘴时的检查提示。

The inspection prompt for wide yarn feeder can be set in the lower computer.

**备注:**

**Note:**

**电磁铁、电机纱嘴的对比**

Comparison between electromagnet and motor yarn feeders

<p>电磁铁控制 Electromagnet control</p>	<p>控制响应快。 Quick control response</p>	<p>功耗大 High power consumption 位置状态受机械安装、使用影响不可预知 Unpredictable position state, which is subject to the affect by mechanical installation and use 带梭、脱梭切换噪音大 Loud noise when switching between shuttle installation and shuttle removal</p>
<p>电机控制 Motor control</p>	<p>功耗低 Low power consumption 带梭、脱梭切换噪音小 Low noise between switching between shuttle installation and shuttle removal 成本低 Low cost</p>	<p>响应慢 Slow response 同个电机控制的 2 把纱嘴切换延时大、宽纱嘴不可用。 Large delay when switching between 2 yarn feeders controlled by the same motor, and unavailability for wide yarn feeders. 多片编织同号纱嘴切换延时大 Large delay when switching the yarn feeders with the same number during multi-piece knitting</p>

**扩展功能按钮**

Extended function button

<p>宽纱嘴 Wide yarn feeder</p>	<p>在系统上设置与主纱嘴绑定关系的纱嘴。 Set the yarn feeder bound with the main yarn feeder on the system.</p>
<p>张力补偿 Tension compensation</p>	<p>不同纱嘴因安装等因素造成相同度目段编织密度差异的补偿修正。 Compensation and correction of knitting density difference of the same stitch due to installation and other factors of different yarn feeders.</p>

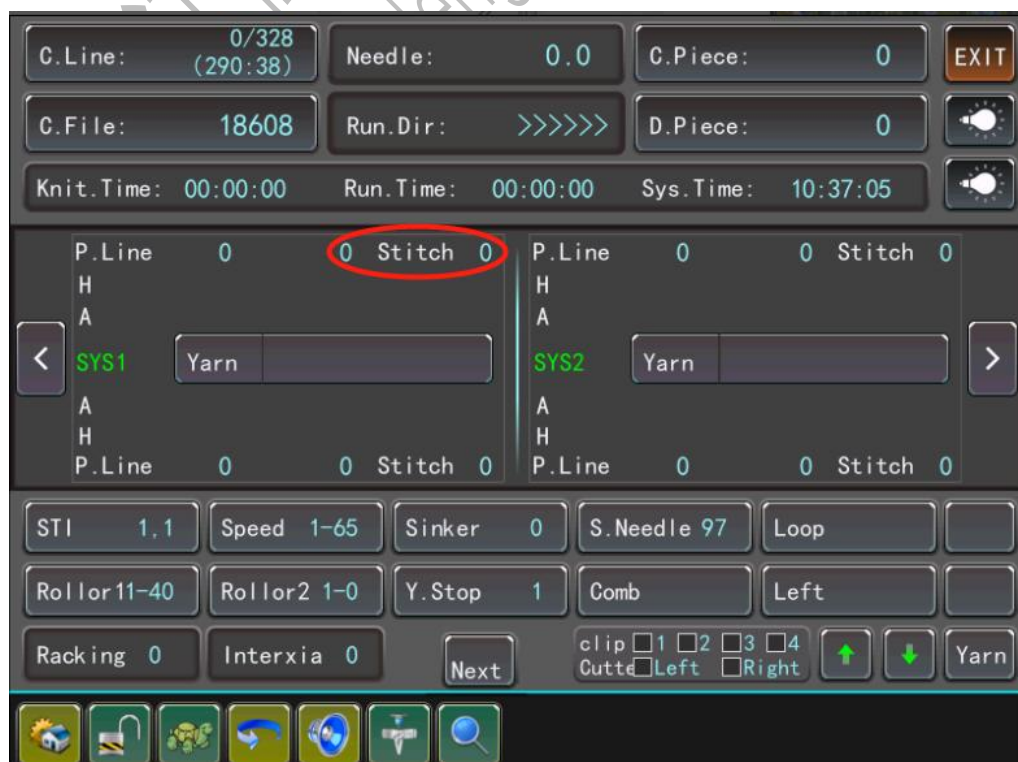


图示：纱嘴张力补偿修改、范围

Illustration: Modification range for yarn feeder pulling force compensation



### 3. 度目 Stitch



工作度目设置

	右行使用				左行使用				慢速补偿
	S1-1.后	S2-1.后	S1-3.前	S2-3.前	S1-2.后	S2-2.后	S1-4.前	S2-4.前	
#01	200	200	201	200	200	200	200	200	0
#02	250	250	250	250	250	250	250	250	0
#03	80	80	120	120	80	80	120	120	0
#04	100	100	120	120	100	100	120	120	0
#05	200	200	200	200	200	200	200	200	0
#06	260	260	260	260	260	260	260	260	0
#07	320	320	320	320	320	320	320	320	0
#08	310	310	310	310	310	310	310	310	0
#09	360	360	360	360	360	360	360	360	0
#10	400	400	400	400	400	400	400	400	0

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Work Stitch

	Right				Left			
	1	3	5	7	2	4	6	8
#01	150	150	150	150	150	150	150	150
#02	150	150	150	150	150	150	150	150
#03	150	150	150	150	150	150	150	150
#04	125	125	125	125	125	125	125	125
#05	170	170	170	170	170	170	170	170
#06	180	180	180	180	180	180	180	180
#07	280	280	280	280	280	280	280	280
#08	300	300	300	300	300	300	300	300
#09	150	150	150	150	150	150	150	150
#10	150	150	150	150	150	150	150	150

DUP Edge-Sti Tuck Pre-STI PGUP PGDN

显示编织系统当前行度目段的设定值（不含修正值叠加），根据运行方向显示相应成圈控制度目电机编号的设置值。

Display the setting value of the current row stitch segment of the knitting system (excluding the superposition of correction values), and display the setting value of the motor number of the stitch segment controlled by the corresponding loop according to the operation direction.

## 2 系统度目电机物理编号

Physical number of motor for dual-system stitch

右行：奇数号工作 1、3、5、7

Move to the right: Motors in odd numbers (1, 3, 5, 7) work

左行：偶数号工作 2、4、6、8

Move to the left: Motors in even numbers (2, 4, 6, 8) work

## 1.3 区域分隔框-下

### Zone separating box- Lower



该区域主要显示花型的工作参数信息显示、修改等操作按钮。

This area mainly displays the working parameters of pattern as well as the operation buttons such as display and modification button.

按钮背景色为黑色的表示无触摸、不可设置。

Buttons in black background color are not touchable and settable.



‘详细’按钮大多用于程序调试时查看调试信息用。

The “Details” button is mostly used to view debugging information when debugging.



## 1. 度目

### STI(Stitch)

工作度目设置
?
×

	右行使用				左行使用				慢速 补偿
	S1-1.后	S2-1.后	S1-3.前	S2-3.前	S1-2.后	S2-2.后	S1-4.前	S2-4.前	
#01	200	200	201	200	200	200	200	200	0
#02	250	250	250	250	250	250	250	250	0
#03	120	120	120	120	120	120	120	120	0
#04	120	120	120	120	120	120	120	120	0
#05	200	200	200	200	200	200	200	200	0
#06	260	260	260	260	260	260	260	260	0
#07	320	320	320	320	320	320	320	320	0
#08	310	310	310	310	310	310	310	310	0
#09	360	360	360	360	360	360	360	360	0
#10	400	400	400	400	400	400	400	400	0

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边缘微调
紧编设置
先行度目
上页
下页

Work Stitch
?
×

	Right				Left			
	1	3	5	7	2	4	6	8
#01	150	150	150	150	150	150	150	150
#02	150	150	150	150	150	150	150	150
#03	150	150	150	150	150	150	150	150
#04	125	125	125	125	125	125	125	125
#05	170	170	170	170	170	170	170	170
#06	180	180	180	180	180	180	180	180
#07	280	280	280	280	280	280	280	280
#08	300	300	300	300	300	300	300	300
#09	150	150	150	150	150	150	150	150
#10	150	150	150	150	150	150	150	150

DUP
Edge-Sti
Tuck
Pre-STI
PGUP
PGDN

查看、修改当前花型 CNT 指令段的度目信息、参数修改等，重要的工作参数之一。

View and modify the stitch information of CNT instruction segment for current pattern, and modify the parameter. This is one of the important working parameters.

工作度目设置窗口，左列带‘#01 - #32’为 CNT 全部指令段标记（可扩展至 64 段），通过上、下翻页查看其它段信息，其中白色标识是花型 CNT 中工作指令段。

In the working stitch setting window, the left columns marked with ‘# 01-# 32’ are the marks for all CNT instruction segments (which can be extended to 64 segments). Information in other segments can be viewed by reversing pages up and down, among which, the white mark indicates the working instruction segment in pattern CNT.

数值高亮显示的则是当前行进入后使用的度目段。

The highlighted number indicates the stitch segment used after entering the current row.



根据厂家 ID 有度目工作段前置显示，方便用户查看、修改等。

According to the manufacturer ID, the stitch segment can be displayed in front, allowing for the users to view and modify.

**备注：**

**Note:**

- **扩展功能按钮**  
**Extended function button**
- **复制**  
**Copying**







依据工作度目设置窗口后、前项选择，弹出度目复制窗口与之智能匹配的后板复制、前板复制选择项。

Based on the front and rear item selection on the working stitch setting window, the stitch copying window will appear, allowing for intelligent copying the matched rear and front boards.

同段度目需快速复制、粘贴其中基准参数时，选择该段一个被参照复制的参数再按弹出式窗口选择相应项操作。

To copy and paste the reference parameters in the same segment of stitch quickly, select one reference parameter to be copied in the segment, and then press the pop-up window to select the corresponding item.

#### **后板复制:**

##### **Back-Copy(Back board copy):**

后板复制，被复制项需要选择有后标记的数值区，将当前选中的数值复制到同段的位于后床的度目三角中。

For the copied item, it is necessary to select the value area with the back mark, and copy the currently selected value to the stitch cam located in the back bed in the same segment.

#### **前板复制:**

##### **Front-Copy(Front board copy):**

前板复制，被复制项需要选择有前标记的数值区，将当前选中的数值复制到同段的位于前床的度目三角中。

For the copied item, it is necessary to select the value area with the front mark, and copy the currently selected value to the stitch cam located in the front bed in the same segment.

#### **全部复制:**

##### **Copy all:**

将当前选中的数值复制到同段的所有其他度目值中。

Copy the currently selected value to all other stitch values in the same segment.

#### **取消复制:**

##### **Cancel:**

取消当前操作，返回工作度目设置窗口。

Cancel the current operation, and return to the working stitch setting window.

● **系统规定段**

**System-specified segment**

系统固定度目使用段							
Usage segment for system fixed stitch							
度目段 Stitch segment	22	23	24	29	30	31	32
说明 Description	直选接针 Direct needle selection	通用翻、接针 Universal needle reversing and connecting	空行 Empty row	压针 Needle pressing			

**操作:**

**Operation:**

单击所需修改段号的参数区域，弹出软键盘修改，按确定完成，取消按退出。

Click the parameter area of the segment number to be modified. A soft keyboard will pop up for modification. Press OK to complete, and press Cancel to exit.

此操作方式同样适用其余工作参数主罗拉、副罗拉、速度等。

This operation method is also applicable to other working parameters, such as main-roller, sub-roller and speed.

● **非沉针式度目分步修正**

**Step-by-step correction of non-needle sinking stitch**



依据编织花型特点对程序自动分配度目分步功能采取禁用执行，以度目段选择禁止、允许。  
According to the of knitting pattern characteristics, the step-by-step function for the automatic distribution of



stitches is disabled in the program, and the function disabling/enabling is selected based on the stitch segment.

单击选择表中需禁用、允许的相应度目段中的任意参数设置区，再单击选择禁止、允许按钮切换。  
Click any parameter setting area in the corresponding stitch segment to be disabled/enabled in the selection table, and then click to switch between disabling and enabling.

禁止：度目段号显示灰色，关闭度目分步功能按常规执行。

Disabling The segment number of the stitch is displayed in gray, and the step-by-step function of the stitch is disabled as usual.

允许：度目段号显示白色，按程序判断条件执行度目分步。

Enabling: The segment number of the stitch is displayed in white, and the step-by-step correction of stitch is executed according to the program judgment condition.

## 2. 主罗拉

### Rollor1(Main-roller)





单位：脉冲速率

Unit: Pulse rate

范围：32 段

Scope: 32 segments

取值范围：-100 - 100

Value range: -100 - 100

主罗拉 CNT 指令段查看、修改。

View and modify CNT instruction segment of main-roller.

白色字体的段号表示花型 CNT 指令工作段，灰色是制版中没有用到无需设置，整体复制时目前程序也会同时覆盖灰色段的参数。

The segment number in white font indicates the working segment of pattern CNT instruction, while the segment number in gray is not used in the pattern, and does not need to be set. During overall copy, the current program will cover the parameters in gray segment at the same time.

正值：牵拉卷布，数值越大拉力越大。

Positive value: Draw off the cloth rolling. The greater the value, the greater the pulling force.

负值：控制主罗拉反向打开幅度的大小，打开幅度与数值呈正比，该参数需根据卷布机构进行合理设置，否则有罗拉机构顶到针板上并使针板有弯曲的风险。

Negative value: Control the reverse opening amplitude of the main-roller. The extent of opening is proportional to the value. This parameter should be set according to the cloth rolling mechanism; otherwise, there is a risk that the roller mechanism may push against the needle plate and result in needle bed bending.

负值设置一般用于松弛一下织物受力状态，防止连续牵拉造成织物线圈变形、破洞等问题。

In general, negative value setting is used to relax the stress state of the fabric, and prevent the loop deformation and holes of the fabric due to continuous draw-off.

主罗拉驱动方式有：力矩电机、步进电机、伺服电机等。

The main-roller is driven by the followings means: Torque motor, step motor, servo motor, etc.

#### 备注：

#### Note:

停车力矩：设定机头停止运行时，牵拉自动停止并保持的拉力

Stopping torque: Set the pulling force when the pulling automatically stops and maintains after the carrier stops operation.

### 3. 摇床

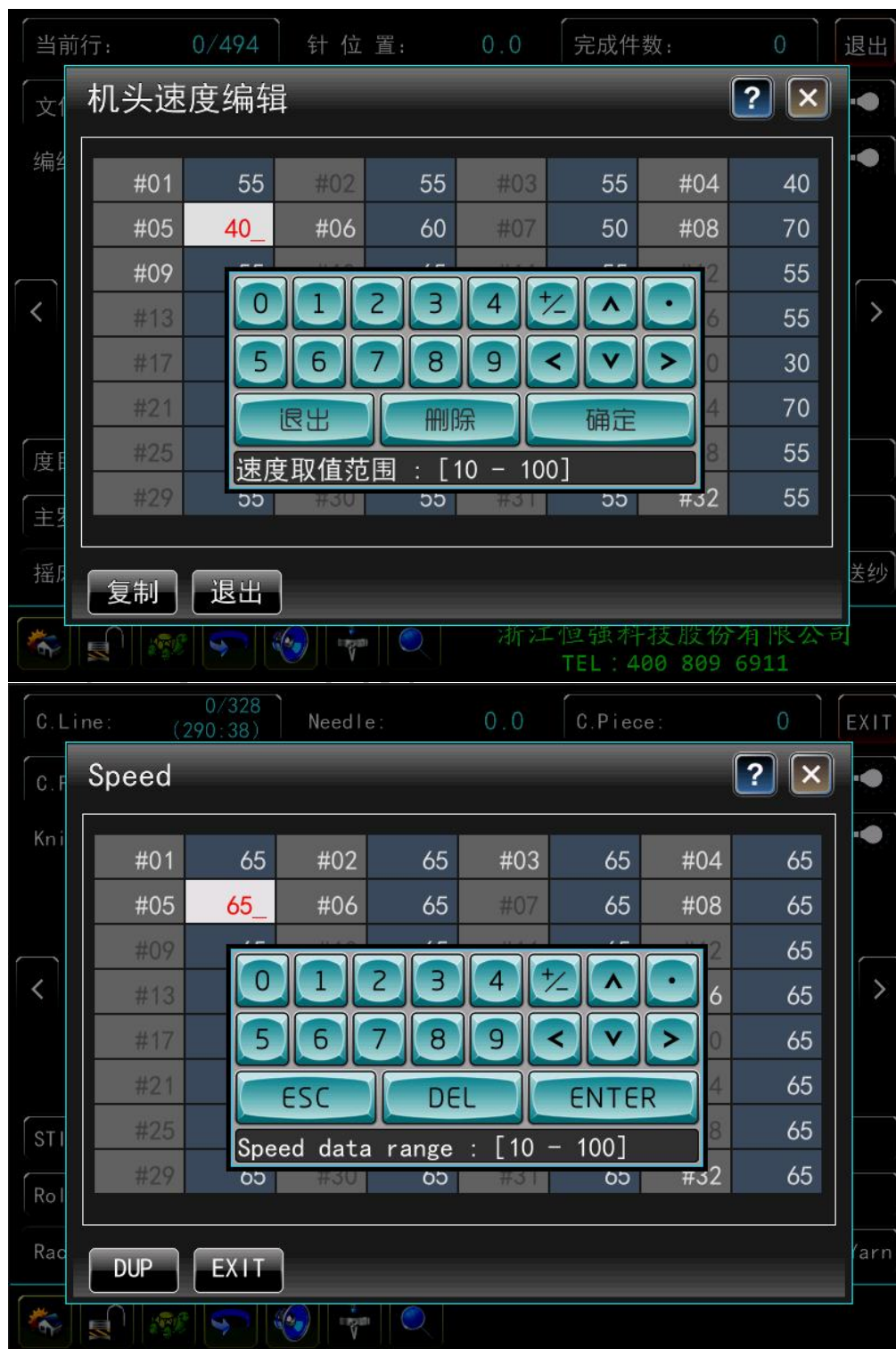
#### Racking

显示针板摇床位置信息，该栏目只显示当前 CNT 行摇床位移量，只读模式不能修改。

Display the position information of the needle plate rock. This column only displays the rock displacement of

the current CNT row. It is in read-only mode and cannot be modified.

## 4. 速度 Speed



用于设置编织时机头的移动速度

It is used to set the carrier's moving speed during knitting.

进入机头速度编辑界面，高亮显示字体即为花版使用的速度段数

Enter the carrier speed editing interface, and the highlighted font indicates the number of speed segments used by the pattern board.

#### 参数复制:

##### Parameter copying:

其他段与设置段参数相同时，点击<复制>弹出提示框：【参数复制】，点击确认实现全部段复制，即将所有段号速度均设置为当前输入值；点击<取消>取消当前操作

When the parameters of other segments are the same as those of the set segment, click <Copy>, and a pop-up box will appear: [Parameter Copying] Click OK to copy all segments, that is, the speeds of all segment numbers are set to the current input value; click <Cancel> to cancel the current operation.

#### 备注:

##### Note:

设定数值大小与编织速度成正比，数值越大，编织越快

The setting value is proportional to the knitting speed. The larger the value, the faster the knitting speed.

有如下指令的行保持低速

Rows with the following instructions will remain at low speed.

1. 执行起始操作的第一行和有结束指令的行  
Execute the first row for start operation and the row with the end instruction
2. 自动停机后使用拉杆再次启动时的第一行  
The first row that is started again using the pull rod after automatic shutdown

## 5. 副罗拉

### Rollor2(Sub-roller)

段范围：32 段

Segment range: 32 segments

数值范围：0 - 100

Value range: 0 - 100

查看、修改 CNT 工作段副卷布牵拉力的大小，设定值大小与拉力成正比，数值越大，卷动越快，拉力越大。

Check and modify the size of the pull force of the auxiliary cloth rolling in CNT working segment. The set value is proportional to the pull force. The larger the value, the faster the rolling and the greater the pull force.

副罗拉用于辅助对织物进行牵拉，根据机型可配选择安装。

Sub-roller is used to assist in drawing off fabrics, which can be installed according to the model.

编纂：浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

沈国龙，匡越、王宇鹏

Shen Guolong, Kuang Yue, Wang Yupeng



机器配置文件‘<副罗拉映射> = X’映射必须要支持，一般起底板机型很少有同时安装有副罗拉卷布装置，故配置中‘<副罗拉映射> = 0’，如果机型支持副罗拉卷布装置的话需要再次进行相应映射配置。  
The machine configuration file ‘<sub-roller mapping> = X’ mapping must be supported. Generally, it is rare for the pull board models to be equipped with sub-roller cloth rolling device at the same time, resulting in the configuration of ‘<sub-roller mapping> = 0’. If the model supports sub-roller cloth rolling device, the corresponding mapping needs to be configured again.

副罗拉驱动方式有：力矩、步进电机、伺服电机等。

The sub-rollers are driven by the following means: Torque motor, step motor, servo motor, etc.

**备注：**

**Note:**

停车力矩：设定机头停止运行时，牵拉自动停止并保持的拉力

Stopping torque: Set the pulling force when the pulling automatically stops and maintains after the carrier stops operation.

## 6. 引塔夏

### Intarsia

显示引塔夏编织行花型信息标志。

Display the pattern information mark of intarsia knitting row.

0: 无

0: None

1/2: 有

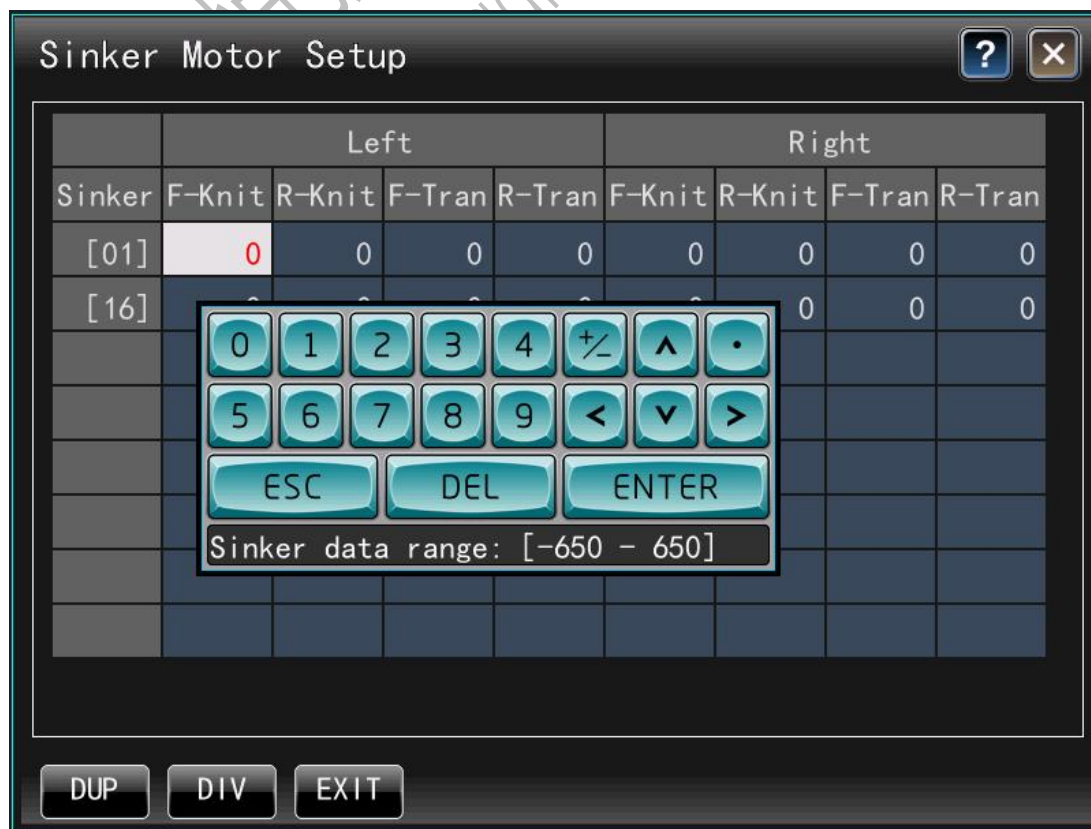
1/2: Yes

## 7. 沉降片

### Sinker

生克电机设置，用于控制沉降片在编织、翻接针行查看、修改等。

Sinker motor setting: used to control the viewing and modification of sinker in knitting, and needle reversing and connection.



制版段数: 16 (段)

Number of program segments: 16 (segment)

系统自定义段: 6 (段)

System customized segment: 6 (segment)

第 01 段, 制版默认指定段。

Segment 01, the default specified segment in program.





生克机构国内普遍使用常开式构造（日本 SHIMA 使用常闭式构造），就是沉降片控制只有在山板进入编织区时作用，离开后沉降片呈开放状态，现有普通、交叉式 2 种类型，区别在于线圈握持深度不一样，交叉式的深度要大出一些。

In China, constantly-enabled sinker structure is widely used (normally-Disabled structure is used in SHIMA, Japan), that is, sinker control only works when the knitting plate enters the knitting zone, and the sinker is in an open state after the knitting plate leaves the knitting zone. There are 2 types: common and cross types. The difference lies in the hoop holding depth, and the depth of cross type is larger.



建议生克按段设置、生克数据模式选择相对位置这种简化设置。左行、右行只需要设置其中之一的编织类型一项（X 编织、X 翻针），如相同参数通过底部功能按钮复制-同类复制粘贴，省去绝对位置这种需要分别设置左行、右行参数。

It is recommended to set the sinker by segments, and select the simple relative position for the sinker data mode. For moving to the left or right, it is only necessary to set one of the knitting types (X knitting, X needle reversing). Same parameters can be copied through the bottom function button for pasting, omitting the step of setting parameters for moving to the left/right in absolute position mode.



图示：生克数据模式-相对位置选择

Illustration: Sinker data mode-relative position selection



恒强制版生克功能线不填写的话默认为第 1 段，可根据需要在某些需单独控制的行进行分段标识。同时系统也提供了按行自定义生克电机分段设置省去了制版修改、编译步骤。

If the sinker function row of Hengqiang program is not filled in, it defaults to Segment 1. Segment marking may be conducted for rows that requiring separate control as required. At the same time, the system is also provided with the customized segment setting of sinker motor by row, thus removing the modification and compiling steps in program.





相对位置选择详见【4-系统参数\_生克数据模式-相对位置】。

See [4-System parameters\_Sinker data mode\_Relative position] for the selection of relative position.

## 8. 纱嘴停放

### Yarn-Stop

当前行: 0/494    针位置: 0.0    完成件数: 0    退出

纱嘴停放点编辑 (1/2)    ?    X

	组1	组2	组3	组4	组5	组6	组7	组8				
#1	2	2	2	2	2	2	2	2	2	22	1	
#2	5	5	5	5	5	5	5	5	5	5	19	4
#3	8	8	8	8	8	8	8	8	8	8	16	7
#4	11	11	11	11	11	11	11	11	11	11	13	10
#5	14	14	14	14	14	14	14	14	14	14	10	13
#6	17	17	17	17	17	17	17	17	17	17	7	16
#7	20	20	20	20	20	20	20	20	20	20	4	19
#8	23	23	23	23	23	23	23	23	23	23	1	22

复制    退出    速度修正    上页    下页

浙江恒强科技股份有限公司  
TEL: 400 809 6911



纱嘴组: 8 (组)

Yarn feeder group: 8 (Group)

范围: 1 - 8、11 - 18 (把)

Scope: 1-8, 11-18 (sets)

纱嘴出编织区停放点查看、设置、修改等。

Check, set and modify the stopping point of yarn feeder out of knitting zone.

可根据花型复杂程度增加不同纱嘴组便于独立控制纱嘴停放点。

Different yarn feeder groups can be added according to the complexity of patterns to facilitate independent control of the stopping point of yarn feeder.

### ● 纱嘴停放点设置原则

#### Setting principle of yarn feeder stopping point

大货生产纱嘴较多, 设置合理纱嘴间位置、相互排列顺序, 防止纱嘴重叠现象影响工作纱嘴经过时发生干涉抖动、噪音等, 尽量将编织行数多的纱嘴停放点靠近编织区减少与其他纱嘴的干涉。

Given the large number of yarn feeders in bulk production, reasonable setting of the positions between yarn feeders and mutual arrangement order will prevent interference, shaking, and noise due to overlapping of yarn feeders in operation. Try to keep the yarn feeders with more knitting rows close to the knitting zone so as

to reduce interference with other yarn feeders.

经常检查梭箱（乌斯座）与纱轨的间隙情况防止梭箱摩擦损耗变松后影响实际停放点位置，一旦发现变松情况请及时调整梭箱、梭轨间的间隙。

Always check the gap between yarn feeder base and feeder rail to prevent the yarn feeder base from loosening due to friction loss, which may affect the actual stopping position. Once loosening is found, please adjust the gap between yarn feeder base and feeder rail in time.

### 纱嘴组使用说明

Use instructions for yarn feeder group

- |     |  |
|-----|--|
| 1   | 恒强制版默认组<br>Hengqiang program default group                         |
| 2   | 引塔夏（嵌花）组<br>Intarsia group   |
| 3-6 | 制版可自定义组<br>Customized group in program                             |
| 7   | 系统程序自动插入行组<br>The system program automatically inserts row groups. |
| 8   | 起底板、剪刀夹子纱出组<br>Pull board and scissors and clamp yarn-out group    |

左侧自上而下顺序排列的是纱嘴号，横向从左往右顺序排列的是纱嘴组号。白色纱嘴号、组号标识为该花型中使用的纱嘴号、纱嘴组，灰色标识表示未使用，如果初始纱嘴两侧都有请按上页、下页查看。运行过程中进入该窗口后参数背景高亮标识提示当前正在使用的纱嘴组纱嘴的运行方向（左、右停放点）。

The yarn feeder numbers are arranged from top to bottom on the left side, and the yarn feeder group numbers are arranged from left to right in the horizontal direction. The yarn feeder number and group number with white marks indicate the yarn feeder number and yarn feeder group used in this pattern, and the yarn feeder number and group number with gray marks indicate the ones not used. If both sides have the initial yarn feeder, press the previous page and the next page for viewing. After entering this window during operation, the parameter with highlighted background indicates the yarn feeder operation direction (left and right stopping points) of the yarn feeder group in use.



部分横机制造厂家有当前花型中使用的纱嘴、纱嘴组前置按序号排列、显示。

Some flat knitting machine manufacturers have designed front arrangement and display of yarn feeders and yarn feeder groups by serial number used in the current pattern.



### 纱嘴停放点编辑-功能按钮

### Yarn feeder stopping point editing-Function button



- **复制**  
**Copying**

选择被复制组任意纱嘴号参数处，单击复制后其余纱嘴组全部按被复制组进行粘贴，使用复制请仔细查看被复制组，一旦单击复制按钮后将无法退回原始设置。

Select any yarn feeder number parameter of the copied group, and click "Copy", then all other yarn feeder groups will be pasted based on the copied group. Please check the copied group carefully before clicking "Copy". Once doing that, you will not be able to return to the original settings.





- **速度修正**

**Speed correction**

纱嘴停放与机头速度对照表的快捷入口，快速查看运行过程中的实际速度修正段及修正值等信息。

It is the quick entry for the comparison table between yarn feeder stopping and carrier speed for quick viewing of such information as actual speed correction segment and correction value during operation.

**纱嘴停放与机头速度对照表**

机头速度	左行	右行	机头速度	左行	右行
1: 1 - 5	0	0	2: 6 - 10	0	0
3: 11 - 15	0	0	4: 16 - 20	0	0
5: 21 - 25	0	0	6: 26 - 30	0	0
7: 31 - 35	0	0	8: 36 - 40	0	0
9: 41 - 45	0	0	10: 46 - 50	0	0
11: 51 - 55	0	0	12: 56 - 60	0	0
13: 61 - 65	0	0	14: 66 - 70	0	0
15: 71 - 75	0	0	16: 76 - 80	0	0
17: 81 - 85	0	0	18: 86 - 90	0	0
19: 91 - 95	0	0	20: 96 - 100	0	0

**Yarn Position & Cam Speed List**

Cam Speed	Left	Right	Cam Speed	Left	Right
1: 1 - 5	0	0	2: 6 - 10	0	0
3: 11 - 15	0	0	4: 16 - 20	0	0
5: 21 - 25	0	0	6: 26 - 30	0	0
7: 31 - 35	0	0	8: 36 - 40	0	0
9: 41 - 45	0	0	10: 46 - 50	0	0
11: 51 - 55	0	0	12: 56 - 60	0	0
13: 61 - 65	0	0	14: 66 - 70	0	0
15: 71 - 75	0	0	16: 76 - 80	0	0
17: 81 - 85	0	0	18: 86 - 90	0	0
19: 91 - 95	0	0	20: 96 - 100	0	0



## 9. 详细

### Next

作为程序调试阶段使用，与特定调试版本时开启，一般程序修改完成后将禁用。

It is used during program debugging stage, which is enabled in specific debugging version, and is disabled after modification of general programs.

## 10.起针点

### S.Needle(Needle starting point)

设置当前花型 PAT 的第 1 针在前针床上定位的针位置设置，即花型的左边界定位。

Set the position of the first needle for the current pattern positioned on the front needle bed, that is, the left boundary positioning of the pattern.









图示：工作参数-花板起始针

Illustration: Working parameters-pattern board starting needle

入口路径：5-工作参数设置-花板起始针。

Entry path: 5-Working parameter setting-pattern board starting needle

花板起始针标识了当前花型第 1 针在针板上的左边界，实际在针床上编织的第 1 针需根据 PAT 花版是否有前置空针（0、F 号色码）决定。

The pattern board starting needle marks the left boundary of the first needle of the current pattern on the needle plate. During actual operation, it is required to determine whether to set an empty needle before the first needle knitted on the needle bed based on the pattern (0, F color code).



调试或检查花型选针情况时为便于查看一般起始针选择 X 段选针器刀头的第一或未刀头，设置花板起始针时需减去前置空针数。

When debugging or checking the pattern needle selection, the first or last blade head of X-segment needle selector is selected to facilitate the viewing. When setting the starting needle of the pattern board, it is required to deduct the number of empty needles set before the first needle.

#### 示例：

##### Example:

花型 PAT 中有前置 1 针的空针，为了将首个编织针在多段针脚的第 1 脚上，起始针按系统参数设定中 <选针器刀片个数> 的整数倍数 +1-<前置空针数>。

In the pattern, one empty needle is set before the first needle. In order to put the first knitting needle on the first stitch of multiple stitches, the starting needle is set according to the integer multiple of <number of needle selector blades> set in the system parameter +1-<number of empty needles set before the first needle>.

8 段选针器，起针点 = 81，如果有前置 1 针空针则起针点 = 80，此时编织的第 1 针正好落在 8 段选针器的第 1 段上。

For the 8-segment needle selector, the starting point = 81. If there is one empty needle set before the first needle, the starting point = 80. At this point, the first stitch of knitting just falls on the first segment of 8-segment needle selector.

选针器刀片个数 = 8	前置空针
Number of needle selector blades = 8	Empty needle set before the first needle
起针点 = 81	0
Needle starting point = 81	
起针点 = 80	1
Needle starting point = 80	

## 11.起底板

### Comb(Pull board)



图示：起底板拉力编辑

Illustration: Pull force editing of pull board

- **起底板拉力编辑**

- Pull force editing of pull board**

范围: 0 - 100

Scope: 0 - 100

设置起底板卷布牵拉工作时 CNT 各工作段卷布拉力参数查看、设置、修改等。

It is used for checking, setting and modifying the cloth rolling force parameters of each working segment of CNT when setting up the pulling of roller on the pull board.

带 #数字编号 为 CNT 指令工作段, 白色高亮对应花型使用的段数, 灰色标识未使用段。

The segments marked with “# number” are the CNT instruction working segments; the segments with highlighted white marks indicate the segments used in patterns, and those with gray marks indicate unused segments.



程序有根据横机厂家 ID 需要对工作段数前置显示, 方便查看、修改等。

The program enables front display of working segment numbers based on the flat knitting machine manufacturer ID to facilitate display, modification, etc.

- **起底板快捷设置**

- Quick setting of pull board**

起底板机型中常用参数的快捷查看、设置、修改等省去反复进入系统参数、工作参数窗口操作, 此窗口中项目将根据应用情况增、减。

This enables quick view, setting and modification of commonly-used parameters in the pull board model, which omits repeated entry into the system parameters and working parameters in the window. The parameters in this window will be increased and decreased according to the application situation.





图示：起底板快捷设置

Illustration: Quick setting of pull board

系统程序规定拉力段

Stitch segment specified  
by the system program

空行  
Empty row 24

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起底板废纱、预勾编织  
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起底板牵拉常用电机  
Common motors for pulling of pull board

1. 力矩电机  
Torque motor

2. 伺服电机  
Servo motor

3. 步进电机  
Step motor

3.1 单个  
Single motor

3.2 两个(左、右独立)  
Dual motors (left and right motors are separated from each other)

起底板卷布工作时，步进（力矩）主罗拉处于打开不工作位置，正常情况下二者只有一个处于工作状态，只有当起底板脱圈滞后行数 > 0、且起底板牵拉到脱布位时步进主罗拉、起底板罗拉同时作用。此时步进主罗拉接管主要卷布牵拉，起底罗拉主要负责交接后防止织物脱圈反弹等。

When the cloth rolling mechanism of the pull board works, the step (torque) main-roller is turned on and not working. In general cases, only one of the two is in the working stage. Only when the number of lagged lines of the pull board knocking-over is > 0, and the pull board is pulled to the cloth-removing position will the main-roller and pull board roller work at the same time. At this point, the stepping main-roller takes over the pulling of the main cloth rolling mechanism, and the pull board roller is mainly responsible for preventing the fabric from knocking over and rebounding after handover.

## 12.剪刀夹子

### Clip And Cutter

入口路径：系统参数-其他-起底板设置/剪刀夹子设置。

Entry path: System Parameters - Other - Pull board Settings/Scissor and clamp Settings.

快捷入口：运行界面-‘剪刀夹子测试’-起底板测试/钢丝测试。

Quick entrance: Running interface – “Scissor and clamp test” - Pull board test/wire test.

该界面主要用于机器上所安装有的夹子、剪刀独立、自动测试等，同时在测试过程中夹子、剪刀的零位状态提示红色变色显示。

This interface is mainly used for independent and automatic testing of clamps and scissors installed on the machine. At the same time, the zero position status display of clamps and scissors turns to red during testing.

当前行有夹子打开、剪刀指令时将显示相关状态。

When there are clamp opening and scissors instructions in the current row, the relevant status will be displayed.

## 13.循环

### Loop(Cycle)

系统中循环创建，CNT 自带节约段、次数等查看、修改。

It is used to create cycle in the system, and view and modify the saving segment built in the CNT, as well as the number.

制版中设置循环可减少制版画图行数，减小图形文件存储大小等。

Setting cycle in program can reduce the number of rows in program and the storage size of graphic files.

节约可以是制版带入、系统设置或混合设置等多种组合方式。

Saving can be in a variety of combinations such as building in the program, system setting or mixed setting.

制版最大循环：1-199（次）

Maximum cycle of program: 1-199 (times)

系统最大循环：1-9999（次）

Maximum system cycle: 1-9,999 (times)

1 次表示往复运行 2 行。

One time means two rows of reciprocating running.

如需设定大于 199 次循环，可通过系统提供的循环设定进行修改。

To set more than 199 cycles, you can modify the cycle settings provided by the system.

### 操作步骤：

#### Operation steps:

单击‘循环’或‘剩余数’均可进入‘循环设定’表。

编纂：浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

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Shen Guolong, Kuang Yue, Wang Yupeng

Click “Cycle” or “Remaining Number” to enter the “Cycle Settings” table.

## 14. 剩余数

### Left(Remaining number)

显示循环编织时的剩余次数。

Display the remaining number of times during cycle knitting.

完成 1 次循环后，系统自动减 1 操作。

After completing one cycle, the system automatically subtracts one operation.

当前循环编织完成后，循环数、剩余数自动清空，直至下一个循环设定段开始。

After the current cycle knitting is completed, the number of cycles and remaining number are automatically emptied until the next cycle setting segment starts.

操作同循环。

The operation is the same as the cycle.

## 15. ↑

主罗拉卷布电机手动点动、连续反转打开。

The main-roller cloth rolling motor is ignited manually and turns on continuously in reverse.

## 16. ↓

主罗拉卷布电机手动点动、连续正转牵拉。

The main-roller cloth rolling motor is ignited manually and pulls forward continuously.

## 17. 送纱

### Yarn(Storage)

力矩电机、调频调速等送纱电机机构中送纱电机速度设置。

Set the speed of yarn feeding motor in yarn feeding motor mechanism such as torque motor and frequency modulation and speed regulation motor.

入口：运行 -> 送纱

Shortcut key: Run-> Yarn

快捷：F7（帮助）-> 送纱器速度设置

Quick: F7 (Help)-> Storage Speed Setting





全自动电脑横机控制系统操作说明-全触摸

Operating Instructions of Automatic Control System of Computerized Flat Knitting Machine - Full Touch

力矩送纱电机启动到设定速度需要一定的加速过渡时间,工作参数-基本工作参数分栏设置中有‘送纱器启动时间’项用于控制拉杆启动后机头延时等待时间的设置。

It takes a certain acceleration transition time for the torque yarn feeding motor to start to the set speed. In the column setting of working parameters-basic working parameters, the item of “yarn feeder starting time” is used to control the setting of the delay waiting time of the carrier after the pull rod starts.

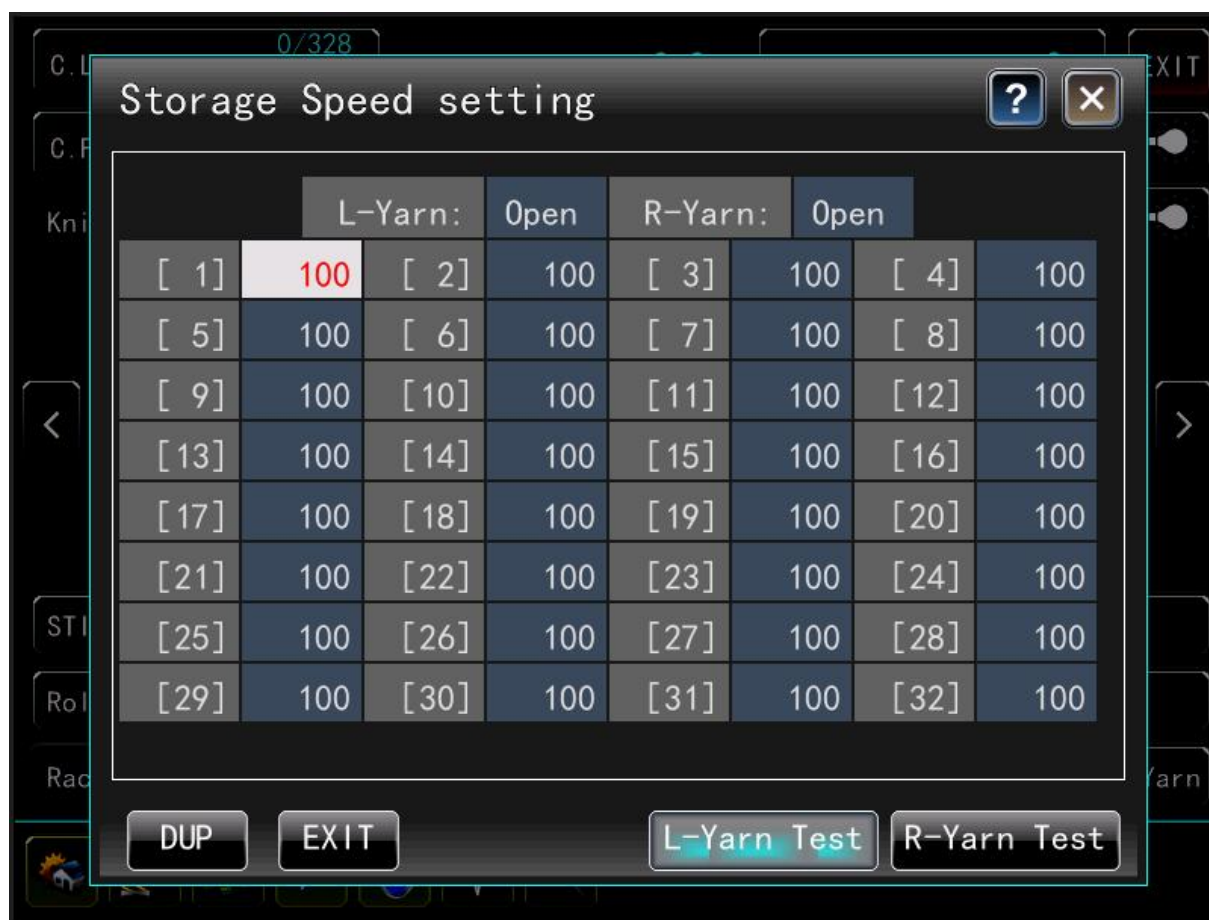
送纱器速度设置窗口下栏带有左送纱测试、右送纱测试按钮用于测试当前行、段送纱电机的速度测试。

The lower column of the yarn feeder speed setting window has the left yarn feeding test and right yarn feeding test buttons for testing the yarn feeding motor speed of the current row and segment.

选择当前行、段、修改速度值,然后单击左、右送纱测试按钮后观察送纱器转动情况,该按钮按下后背景色保持高亮、送纱电机连续旋转直至再次单击按钮后解除,该按钮一般用于力矩电机送纱装置左、右手动穿纱时无阻力引线场景等。

Select the current row and segment, modify the speed value, and then click the left and right yarn feeding test buttons to observe the rotation of the yarn feeder. When the button is pressed, the background color will remain highlighted, and the yarn feeding motor will rotate continuously until it is released after clicking the button again. This button is generally used in no-resistance wire leading during the left and right manual threading in the torque motor yarn feeding device.





图示：左送纱测试

Illustration: Left yarn feeding test

操作：

Operation:

单击送纱按钮，弹出送纱器速度设置，根据制版控制段进行相关修改等。

Click the yarn feeding button, and the yarn feeder speed setting interface will pop up for relevant modifications according to the program control segment.

### ● 附：快捷键\_数字

#### Attachment: Shortcut key\_number

名称 Name	数字键 Numeric key	备注 Note
密度-工作度目设置 Density - working stitch setting	1	1. 全部制版段前置顺序排列，含系统规定段。 1. All program segments are arranged in preamble sequence, including system-specified segments. 2. 当前运行段高亮显示，其中一口为空系统则高亮编织段。

		2. The current running segment is highlighted, and the knitting segment will be highlighted if one of the them is empty system.
主罗拉-主罗拉编辑 Main-roller - Main-roller editing	2	1. 全部制版段前置顺序排列, 含系统规定段。 1. All program segments are arranged in preamble sequence, including system-specified segments. 2. 当前运行段高亮显示。 2. The current running segment is highlighted.
副罗拉-副罗拉编辑 Sub-roller - Sub-roller editing	3	
开合罗拉-开合罗拉编辑 Opening and closing of roller - opening and closing roller editing	4	1. 此表为兼容早期 2812 / 28335 系统支持主罗拉反向打开幅度用设置。 1. This table is compatible with earlier 2812/28335 systems to support the main-roller reverse opening amplitude settings. 2. A8 系统如程序支持负数设置则此表功能取消。 2. For the A8 system, if the program supports negative number setting, then this table function is canceled. 设置方式: Setting method: ● 当主罗拉相应段数值为零, 开合罗拉段设置大于零主罗拉将反向打开, 幅度按设置数值执行。 When the corresponding segment value of the main-roller is zero, and the opening and closing roller segment setting is greater than zero, then the main-roller will be opened in reverse, and the amplitude will be executed based on the set value. ● 即需主罗拉打开, 此段主罗拉设置数值必须是零。 That is, the main-roller must be opened, and the setting value of this main-roller must be zero. 3. 主罗拉反向打开引入负数设置, 便于快捷设置。 3. Negative number setting is introduced into the reverse opening of main-roller for quick setting.
速度-机头速度编辑 Speed-carrier speed editing	5	1. 全部制版段前置、顺序排列。 1. All program segments are arranged in preamble sequence. 2. 当前运行段高亮显示。 2. The current running segment is highlighted.
纱嘴停放-纱嘴停放点编辑 Yarn feeder stopping-Yarn feeder stopping point editing	6	1. 制版纱嘴前置顺序排列。 1. Yarn feeders are arranged in preamble sequence in the program. 2. 当前段纱嘴高亮显示。

		2. The current segment of yarn feeder is highlighted.
跳行-行跳转 Row skipping - Row skipping	7	
纱嘴编辑 Yarn feeder editing	8	
多片展开设置 Multi-piece expansion setting	0	

## 1.4 F1 - F7 功能按键

### F1 - F7 function buttons



### 1. F1 复位

#### F1 reset

编织准备，机器归零复位。

It is used for preparing knitting, and resetting the machine to zero.



原点复位完成，编织准备，黄色指示灯常亮。

When the origin reset is completed, and knitting is ready, the yellow indicator light is solid on.



原点复位状态，黄色指示灯闪烁。

When the machine is in the origin reset status, the yellow indicator flashes.

原点复位是进入正常编织之前的必要执行流程。

Origin reset is a necessary process before entering normal knitting.

原点复位可以是停车手动选择，也会有系统运行中异常后强制执行等。

Origin reset can be manually selected after stopping, or forced to be executed if there is any error with system operation.

新花型输入后选择、重新选择当前花型等都将自动触发复位流程，启动拉杆后系统执行复位流程。

Selection after inputting a new pattern and re-selecting the current pattern will automatically trigger the reset process. The system will execute the reset process after the pull rod is started.

#### ● 系统强制执行：

##### Enforced execution by the system:

花型重新选择、跳行、针信号异常报警、续织失败等。

Pattern re-selection, row skipping, abnormal alarm of needle signal, failure of continuous knitting, etc.

背景呈绿色状态表示编织确定，可进入编织，复位流程完成后自动切换。

The green background indicates that knitting is confirmed and can be entered. After the reset process is

completed, it can be switched automatically.

● **原点复位拉杆启动流程如下：**

**The starting process of the origin reset pull rod is as follows:**

1. 选针器刀头复位（机头在任意位置），当手动选择‘F1-复位’或被强制执行复位时选针器刀头先行清刀防止机头移动时有出针问题。

Needle selector blade head reset (carrier in any position): when “F1-reset” is selected manually or the reset is forced to be executed, the needle selector carrier will clear the blade to prevent needle error when the carrier moves.

2. 电磁铁复位(换梭电磁铁、三角控制电磁铁)

Electromagnet reset (shuttle change electromagnet, cam-controlled electromagnet)

3. 选针器刀头再次复位（机头到达左限位时）

The needle selector blade head is reset again (when the carrier reaches the left limit)

4. 度目马达及生克电机原点复位

Origin reset of stitch motor and sinker motor

5. 摇床伺服电机原点复位

Rock servo motor original resetting

备注：

Note:

生克电机可在工作参数中设定前、后沉降片复位值（无生克控制装置或在系统参数设置中将生克有效 -> 关闭则略去此步）

Sinker motor can set the front and rear sinker resetting value in the working parameters (if there is no sinker control device or the Enable sinker is disabled in the system parameter setting, omit this step.

归零复位完成后，进入编织运行准备。

After zeroing and resetting, enter the knitting running preparation.



目前横机编织机头三角、推针有多种控制方式，包括步进电机、电磁铁等，实际复位流程根据机器配置执行相关复位操作。

At present, there are many control modes for the carrier cam and push needle of the flat knitting machine, including step motor, electromagnet, etc. The actual reset process is executed based on the relevant machine configuration.



## 2. F2 行锁定

### F2 Page-Lock



按 CNT 控制指令执行。

Execute according to CNT control instructions.

锁行，循环编织 CNT 第 1 -> 2 行数据，直至解除。

Lock rows and cycle knitting, based on the CNT rows 1-> 2 cyclically until released.

中途不停车编织过程中可以手动切换、解除锁行。

The user can manually switch and release the row locking during the knitting without stopping the machine.



工作参数设置 -> 最大锁行数 > 0，每次复位完成后自动切换成锁行状态直至设定锁行完成后自动解锁、状态切换。

Working parameter setting-> Maximum number of lock rows> 0. Automatically switch to lock row state after each reset is completed until automatic unlocking and switching of state after lock row setting is completed.

## 3. F3 机头速度

### F3 Fast/Slow(carrier speed)



慢速  
Slow



快速  
Fast

拉杆快动位时，此时的速度便是机头速度编辑窗口中的设定值。

When the pull rod moves quickly, the speed at this point is the set value in the carrier speed editing window.

备注：

Note:

机头速度取决于图标+拉杆组合，详见‘4-工作参数’中机头低速 1、机头低速 2、机头中速、机头高速的定义。

Carrier speed depends on the combination of icon and pull rod. See the definitions of Carrier Low Speed 1, Carrier Low Speed 2, Carrier Medium Speed and Carrier High Speed in “4-Working Parameters” for details.

可在机头运行中选择切换，切成乌龟图标当前行立即减速生效，切换到兔子后下一行生效。

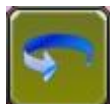
Switch can be selected during the operation of the carrier. The deceleration takes effect instantly for the row when the icon is switched to the “tortoise” icon, which takes effect for the next row when the icon is switched to the “rabbit” icon.

## 4. F4 单片停车

### F4 Single-Stop(single-piece stopping)

一片编织完成后机头停车并弹出提示。

After a piece of knitting is finished, the carrier stops and a prompt pops up.



连片编织。  
Continuous-piece knitting.



单片停车。  
Single-piece stopping.

普通罗拉机，机头停在结束行编织区外。

For the common roller machine, the carrier stops outside the knitting zone of the end row.

起底板（起底板使能 -> 打开、剪刀使能 -> 打开），机头停在左纱出位置。

For the pull board (Enable pull board-> enabled, Scissors enabled-> enabled), the carrier stops at the left yarn output position.

起底板使能 -> 关闭、剪刀夹子使能 -> 打开，机头停在左纱出位置。

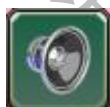
When “Enable pull board-> Disabled” and “Scissor and clamp enabled-> enabled”, the carrier stops at the left yarn-out position.

## 5. F5 报警关闭

### F5 Alarm-Toggle(Alarm off)

报警开，触发后机器停止运行、蜂鸣器发出断续声音提示。

When the alarm is turned on, the machine stops running after triggering, and the buzzer will give an intermittent sound prompt.



根据系统参数设定-报警灯音量/报警持续时间项参数定义。

It is defined according to the system parameter setting-alarm lamp volume/alarm duration item parameter.

报警关。

Alarm off.



触发规则类报警关闭后，机头依然会停车只是蜂鸣器不再发出声音提示。

Triggering rule type: After the alarm is turned off, the carrier will still stop, but the buzzer will no longer give a sound prompt.

## 6. F6 纱嘴提起

### F6 Yarn-Lift(yarn feeder lifted)



纱嘴正常携带。  
The yarn feeder is carried normally.



纱嘴提起。  
Lift the yarn feeder.

全部使用中的纱嘴临时提起。

All yarn feeders in use are temporarily lifted.

一般用于纱线断纱后穿纱，临时移出当前纱嘴时按 F6 纱嘴提起，处理完成后再按此按钮恢复。

In general, it is used for threading after the yarn is broken. When the current yarn feeder is temporarily moved out, press F6 to lift yarn feeder, after the completion of processing and then press this button to restore.

F6 纱嘴提起时，启动拉杆后系统有报警检测机制，弹出提示‘纱嘴提起’

When F6 yarn feeder is lifted, the system has an alarm detection mechanism after starting the pull rod, and a prompt “Yarn feeder lifted” pops up.

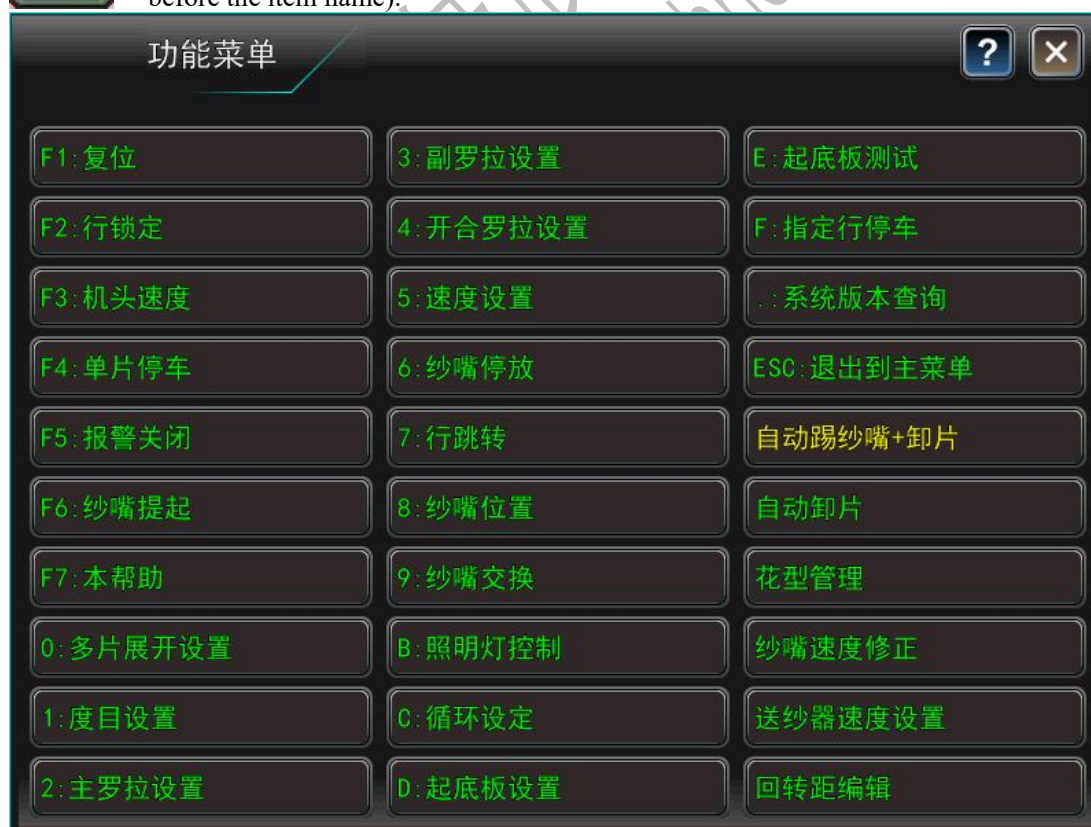
## 1.5 F7 帮助 (功能菜单)

### F7 help (Function menu)



功能菜单入口，选择部分常用项目（项目名称前有按键快捷提示）。

Function menu entrance: select some commonly-used items (there is a shortcut key prompt before the item name).





## 1. 0:多片展开设置

### Multi-piece expansion settings





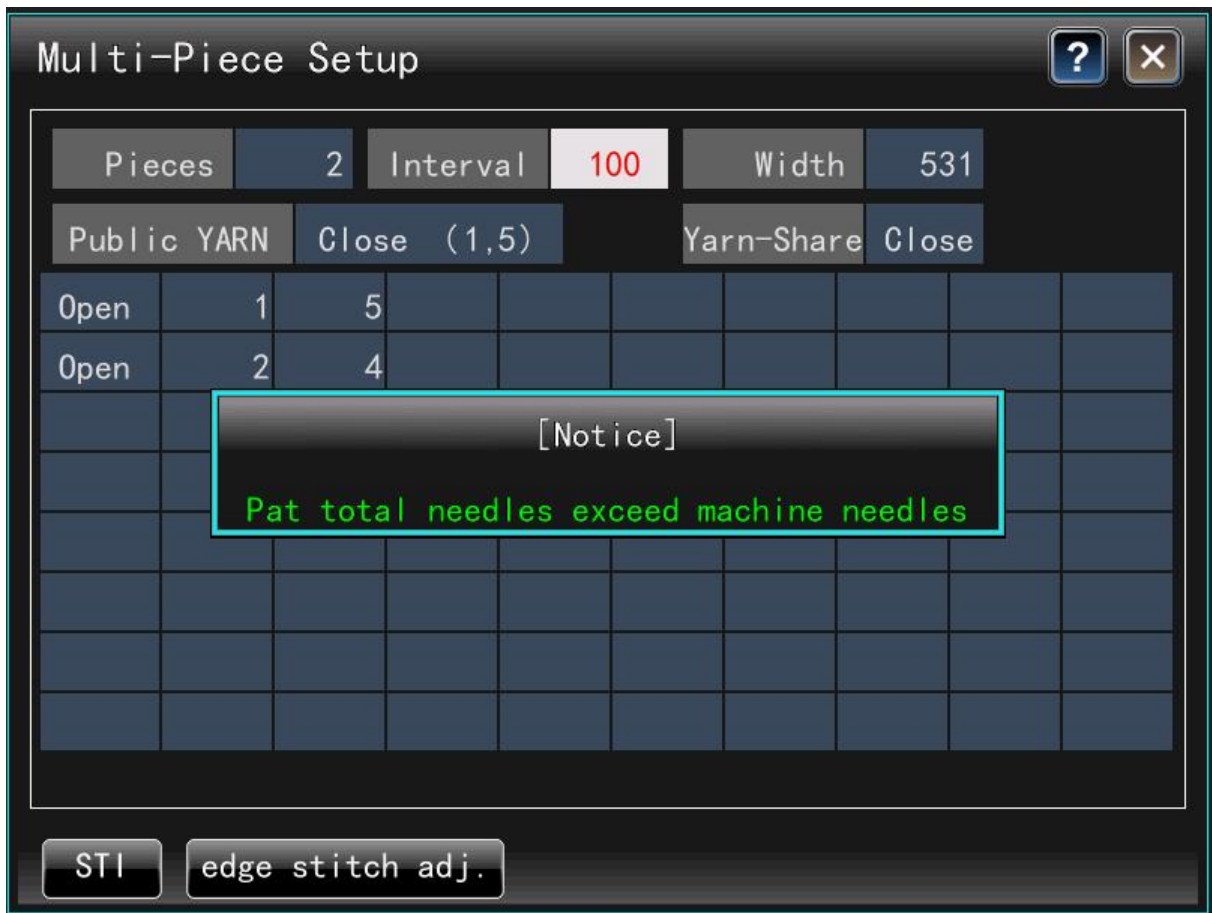
一片多织功能，将 PAT 平行间隔复制数个编织提高编织产量，主要用于一些花型组织简单且幅宽较小场景，如衣片附件门襟条、织带等。

One-piece multi-knitting function copies several weaves of PAT in parallel intervals to improve knitting yield. It is mainly used in some scenes with simple pattern stitch and small width, such as garment piece hem, braid, and so on.

片间隔针数需根据花型的纱嘴数量、纱嘴停放点进行合理规划，防止纱嘴停放后落入其他片中。  
The number of stitches between pieces should be reasonably planned according to the number of yarn feeders of the pattern and the stopping points of yarn feeders, so as to prevent yarn feeders from falling into other pieces after stopping.

- **多片编织功能目前只适用于普通罗拉机花型，不能用于起底板使能 -> 打开场景。**  
At present, the multi-piece knitting function is only suitable for common roller pattern, and cannot be used when “Enable pull board” is enabled.





系统最大展开片数：XX（片）  
Maximum number of expanded pieces in the system: XX (piece)

默认展开片数：1  
Default number of expanded pieces: 1

### ● 多片展开设置步骤、说明 Multi-piece expansion setting steps and description

1. 展开片数  
Number of expanded pieces  
片展开数设置。  
Set the number of pieces expanded.
2. 间隔针数  
Spacer needle number  
片间距  
Piece spacing
3. 片展开纱嘴映射

Mapping between the piece expanding and yarn feeder

片展开纱嘴定义，可根据花型纱嘴数情况设置与基准片同号。

The piece-expanding yarn feeder can be defined in accordance with the number of the pattern yarn feeders, which has the same number as the reference piece.

#### 4. 其他

Others

- 废纱纱嘴使能

Waste yarn feeder enabled

多片编织时起始行使用同一把废纱纱嘴。

When knitting multiple pieces, the same waste yarn feeder is used at the start row.

- 纱嘴共用

Sharing of yarn feeder

各片共用基准片纱嘴编织。

Each piece shares the reference piece yarn feeder knitting.

#### 备注：

Note:

设置展开片数、间隔针数后程序自动计算花型起针点+花型最大宽度\*展开片数+间隔针数后是否有超出针床总针数范围。

After setting the number of expanded pieces and spacing needles, the program automatically calculates whether the result of needle start point of pattern + the maximum width of pattern \* number of expanded pieces + number of spacing needles exceeds the total number of needles in the needle bed.

当起针点、间隔针数设置不正确系统弹出花样展开总宽度超过机器总针数提示后请重新调整合适的参数。

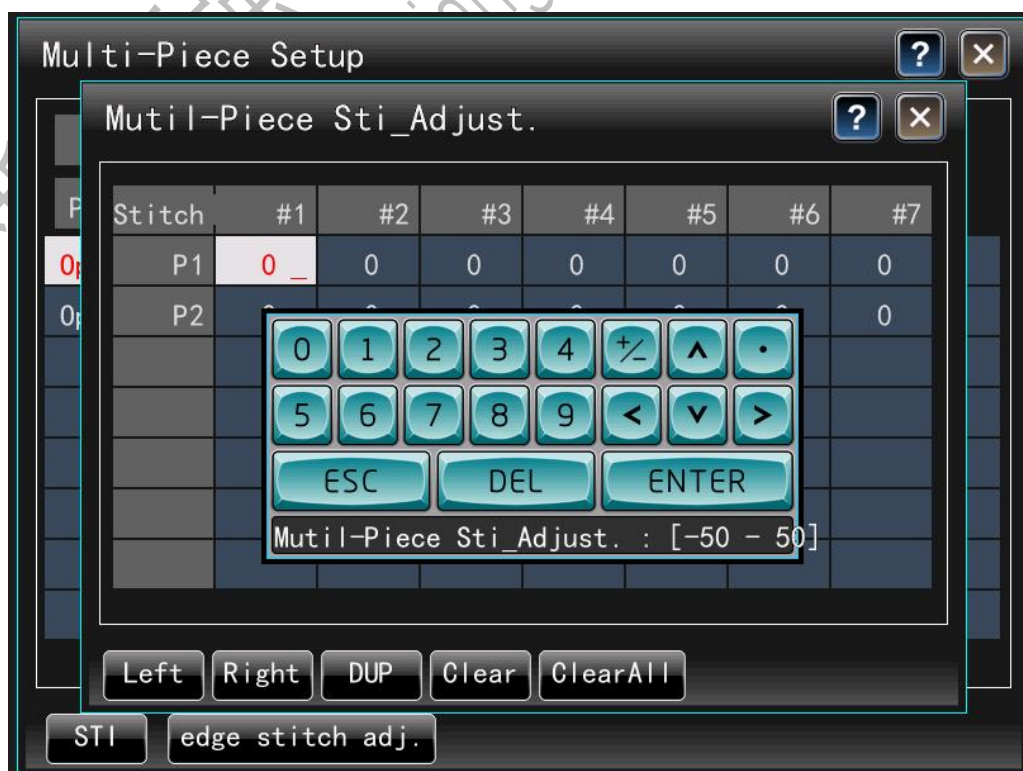
When the starting point and number of interval needles are incorrectly set, please readjust the appropriate parameters after the system pops up the prompt that the total width of pattern expansion exceeds the total number of needles in the machine.

- 度目

Stitch

多片编织时可独立修正多片与基准片度目的相对值修正，控制每片的衣长一致，防止片间长短片现象，根据需要基准片同样可以进行修改。

The relative value correction of multiple pieces and reference piece stitch can be corrected independently during multi-piece knitting, so that the length of each piece is controlled to be consistent. The reference piece can also be modified according to needs.



图示：多片度目微调

Illustration: Multi-piece stitch fining

修正范围: -50 - 50

Range of correction: -50 - 50

度目段依据 CNT 指令段并前置显示, 用左翻、右翻切换显示其它段。

Stitch segment is based on the CNT instruction segment and is in front display, and the display of other segments can be switched with left flip and right flip.

- **边缘微调**  
**Edge fining**







在花型两侧根据编织需要调整一定数量织针的成圈度目，以达到对织物松紧程度的改变。

In order to change the tightness of fabric, the looped stitch of a certain number of knitting needles should be adjusted according to the knitting requirements on both sides of the pattern.

提示：

Prompt:

当前花型有多片展开设置，则可通过窗口下栏的‘上片’、‘下片’按钮翻片至另一片进行独立设置，展开片参数和基准片一样可直接点‘继承’弹出提示框‘是否确认继承基准片设置？’，点击确认后复制、粘贴基准片参数设置。

If there are multiple-piece expansion settings for the current pattern, you can flip it to another piece for independent setting through the “Up” and “Down” buttons in the lower column of the window. The parameters of the expansion piece are the same as those of the reference piece. Directly click “Inherit”, and the prompt box stating “Sure to inherit the reference piece settings” will pop up. After click “OK”, copy and paste the reference parameter settings.

## ● 先行度目

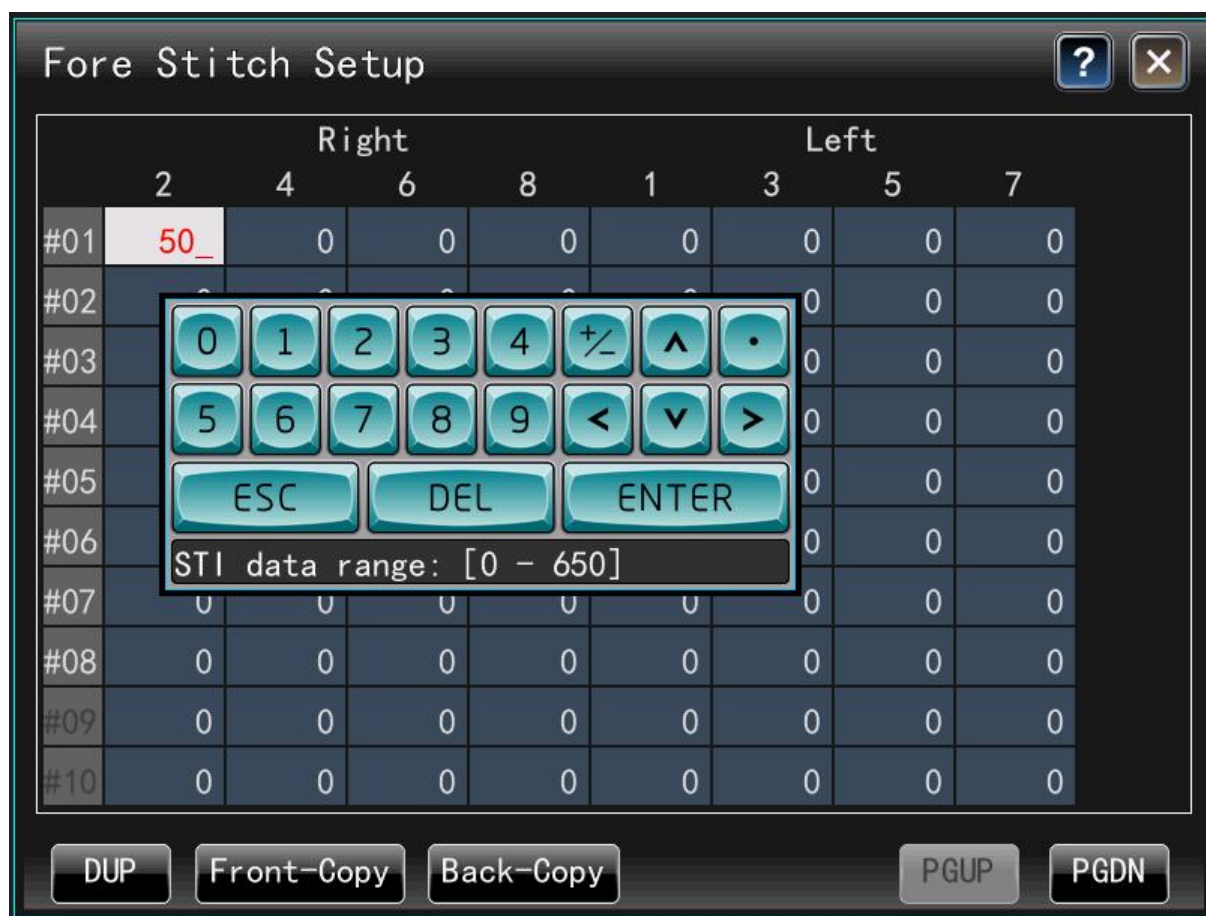
### Preferred stitch

机头运行中先进入工作区的一侧度目为先行度目，先行度目非成圈度目。

In the operation of the carrier, the stitch on the side that firstly enters into the working area is the preferred

stitch, which is not the looped stitch.





图示：先行度目设置

Illustration: Preferred stitch setting

先行度目大小需根据山板度目构造谨慎设置，其主要作用是清理上一行织针的成圈线圈。先行度目、成圈度目是同一电机根据运行方向相互切换，即此行为先行、下行则为成圈度目。

The size of the preferred stitch should be carefully set according to the structure of the knitting plate stitch, and its main function is to clean the looped stitch of the previous row of knitting needles. Preferred stitch and looped stitch are mutually switched by the same motor according to the operation direction, that is, if this row is the preferred stitch, then the next line is the looped stitch.

高速高效编织中因机头回转快、回转距小，成圈度目->零位->先行度目因移动路径较长，进入编织区前有未及时到位发生，系统程序相应做了优化方案。

In high-speed and high-efficiency knitting, due to the fast rotation of the carrier and small rotation distance, the moving path of the looped stitch -> zero position -> preferred stitch is long, so the stitch may not be in place sometimes before entering into the knitting zone. As such, the system program is optimized accordingly.

成圈度目->先行度目，成圈度目不回零直接到先行度目。

Looped stitch -> preferred stitch: The looped stitch does not return to zero and goes directly to preferred stitch.

先行度目->成圈度目, 成圈度目先回零再到先行度目。

Preferred stitch -> looped stitch: looped stitch returns to zero first and then goes to the preferred stitch.

## 2. 主罗拉设置

### Roller(Main-roller setting)

详见【1.3-2】

See [1.3-2] for details.

## 3. 副罗拉设置

### Roller2(Sub-roller setting)

详见【1.3-5】

See [1.3-5] for details.

## 4. 开合罗拉设置

### Rol-Opener(Opening and closing setting of roller)

段数: 32 段

Number of segments: 32 segments

范围: 0- 100

Scope: 0 - 100

设定机头编织时的开合罗拉打开幅度, 数值大小与罗拉打开成正比, 数值大, 打开大。

Set the opening amplitude of the roller during carrier knitting. The value is proportional to the opening of the roller. The value is large, and the larger the opening.

备注:

Note:

停车力矩: 设定机头停止运行时, 牵拉自动停止并保持的拉力。

Stopping torque: Set the pulling force when the pulling automatically stops and maintains after the carrier stops operation.

## 5. 速度设置

### Speed

详见【1.3-4】

See [1.3-4] for details.

## 6. 纱嘴停放

### Yarn-Stop

详见【1.3-8】

See [1.3-8] for details.

编纂: 浙江恒强科技股份有限公司-研发中心

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## 7. 行跳转

### Page-Jump

设定机头跳行编织功能

Set the row-skipping knitting function of the carrier.

进入界面会弹出【请输入跳转行号】，输入需要跳转的行数即可

When entering the interface, a prompt stating [Please enter the skipped number] will pop up. Enter the row number to be skipped.

## 8. 纱嘴位置

### Yarn-Pos(Yarn position)

设定纱嘴交换和叠纱功能

Set the yarn feeder exchange and yarn stacking functions.

## 9. 纱嘴交换

### Yarn-Swap(Yarn exchange)

设定纱嘴交换和叠纱功能

Set the yarn feeder exchange and yarn stacking functions.

## 10. 照明灯控制

### Light

设置随机安装的照明灯控制模式。

Set the randomly installed lighting control mode.

单灯双控：同时控制上、下照明灯。

Single lamp and double control: Control the upper and lower lights at the same time.

双灯双控：独立控制上、下照明灯。

Double lamp and double control: Independent control of upper and lower lighting lamps.

## 11. 循环设定

### Cycle(Loop setting)

设定编织时的数据循环。

Set the data cycle during knitting.

设定组数：10

Set the number of groups: 10

数值范围：【开始行】和【结束行】由当前花型总行数决定

Value range: [Start Row] and [End Row] are determined by the total number of rows in the current pattern.



【循环数】为 1~9999

[Cycle number] is 1 ~ 9,999.

**备注:**

**Note:**

1、必须按序号添加循环组，删除时可自由选定已设定循环组删除

The cycle group must be selected by sequence number. The cycle group detection can be set as you like.

2、【开始行】和【结束行】的间隔必须为奇数

The interval between [Start Row] and [End Row] must be odd.

3、本系统支持大、小循环嵌套，但小循环必须在大循环中

This system supports nesting of large and small cycles, but small cycle must be in large cycle.

## 12. 起底板设置

### Comb Setup

起底板、剪刀夹子等相关参数设定。

Related parameters such as pull board and scissor and clamp can be set.

## 13. 起底板测试

### Comb-Test

起底板功能测试，包含升降电机、复合针、钢丝穿丝等。

Function test of pull board, including lifting motor, composite needle, wire threading, etc.

## 14. 指定停车行

### Page-Stop(Designate stopping row)

设置指定行停车，用于查看某些行执行信息，当机头运行至指定行停止时，屏幕弹出 <指定行停车>提示，取消后启动拉杆继续运行。

Set the designated row to stop, which is used to view the execution information of some row. When the carrier runs to the designated row and stops, the screen pops up a prompt <Designated row stopping>. After cancellation, start the pull rod to continue running.

指定行停车设置一次有效，系统关机、开机后自动清除。

The setting of the designated row stopping is valid once, which will be automatically cleared after system is shut down and starts up.

## 15. 系统版本查询

### System version

查询系统当前版本信息

Query the current version information of the system.

## 16. 退出到主菜单

### Exit

退出当前界面至主菜单

Exit the current interface to the main menu.

## 17. 自动踢纱嘴+卸片

### Kick+Drop Piece

设置机头当前状态下将纱嘴踢出针板外，并进行卸片

Set to kick the yarn feeder out of the needle plate and unload the piece under the current state of the carrier.

## 18. 自动卸片

### Auto Drop

废除当前编织片，自动运行织物卸片、落布流程。

Abolish the current knitting piece, and automatically run the fabric unloading and doffing process.

卸片根据运行方向前、后系统循环出单面满针，卸片幅宽当前行花型宽度。

According to the operation direction, the unloading piece circulates out on in one side with full needle, and the unloading width is the current pattern width.

自动卸片前请务必查看纱嘴停放位置，防止落入卸片行程内打针。

Before automatic unloading, please check the stopping position of the yarn feeder to prevent from entering the unloading process for needle operation.

自动卸片时请设置合理的卸片罗拉、度目等参数。

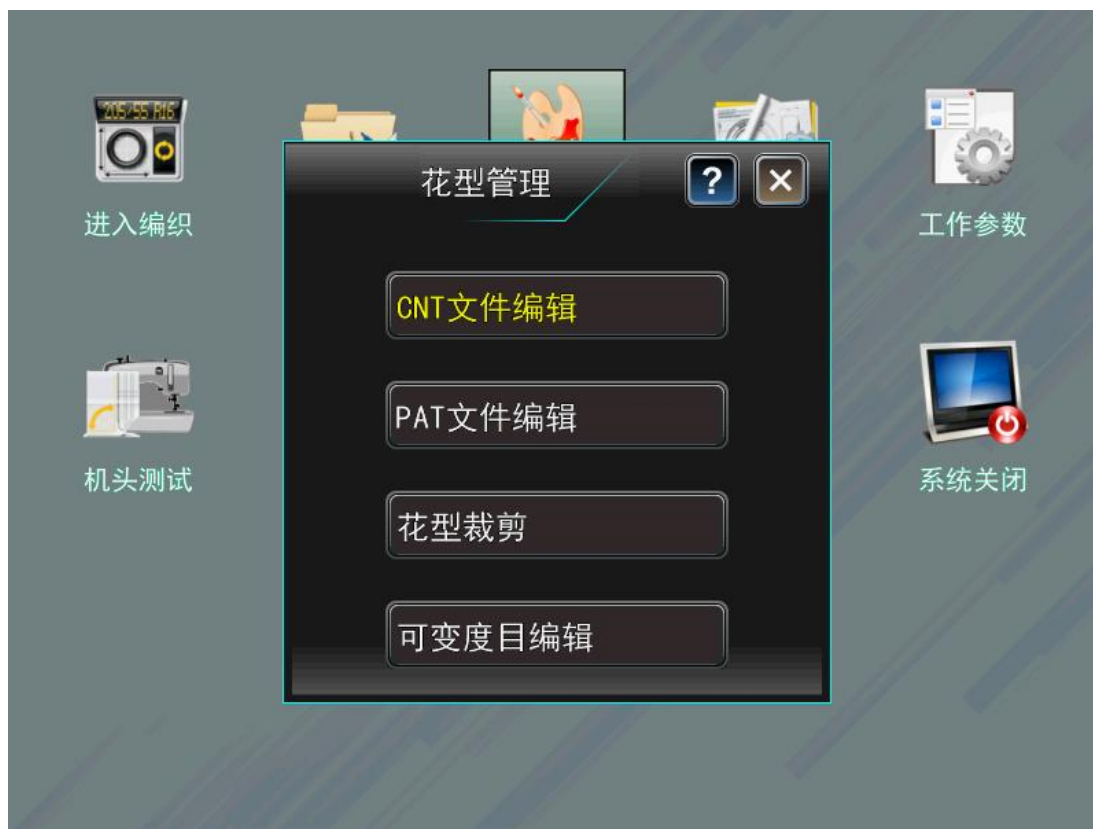
Please set reasonable parameters such as roller and stitch during automatic unloading.

## 19. 花型管理

### Pattern manage

跳转到花型管理窗口。

Skip to the pattern management window.



## 20. 纱嘴速度修正

### Yarn Spd Tune

跳转纱嘴停放与机头速度对照表窗口。

Comparison table window of skip yarn feeder stopping and carrier speed.



机头速度	左行	右行	机头速度	左行	右行
1: 1 - 5	0	0	2: 6 - 10	0	0
3: 11 - 15	0	0	4: 16 - 20	0	0
5: 21 - 25	0	0	6: 26 - 30	0	0
7: 31 - 35	0	0	8: 36 - 40	0	0
9: 41 - 45	0	0	10: 46 - 50	0	0
11: 51 - 55	0	0	12: 56 - 60	0	0
13: 61 - 65	0	0	14: 66 - 70	0	0
15: 71 - 75	0	0	16: 76 - 80	0	0
17: 81 - 85	0	0	18: 86 - 90	0	0
19: 91 - 95	0	0	20: 96 - 100	0	0

Cam Speed	Left	Right	Cam Speed	Left	Right
1: 1 - 5	0	0	2: 6 - 10	0	0
3: 11 - 15	0	0	4: 16 - 20	0	0
5: 21 - 25	0	0	6: 26 - 30	0	0
7: 31 - 35	0	0	8: 36 - 40	0	0
9: 41 - 45	0	0	10: 46 - 50	0	0
11: 51 - 55	0	0	12: 56 - 60	0	0
13: 61 - 65	0	0	14: 66 - 70	0	0
15: 71 - 75	0	0	16: 76 - 80	0	0
17: 81 - 85	0	0	18: 86 - 90	0	0
19: 91 - 95	0	0	20: 96 - 100	0	0

设定机头在不同运行速度下纱嘴停放位置偏移所做的补偿修正。

Set the compensation correction made for the deviation of the stopping position of the yarn feeder when the carrier is at different running speeds.

机头携带电磁铁或电机纱嘴控制机构因纱嘴座惯性、阻尼等影响，编织速度越快停放位置偏移越大，需要对持进行适当的位置修正。

Because of the influence of inertia and damping of the yarn feeder base, the faster the knitting speed, the greater the deviation of the stopping position of the electromagnet or motor yarn feeder control mechanism carried by the carrier. As such, it is necessary to correct the position of the holder properly.

速度修正以范围 1-5/6-10/11-15/...96-100 等分刻度段，设定修正处理时请以该范围段的中间值测速防止数据出现跳段现象。

Speed correction is divided into scale segments with range 1-5/6-10/11-15/... 96-100. When setting correction, please measure speed with the middle value of this range to prevent data from skipping segment.

例如：11-15 段取速度 13，96-100 段取速度 98 等。

Example: The speed of segment 13 is used for segments 11-15, and the speed of segment 98 is used for segments 96-100, and so on.

速度修正花型宽度最好是总针数的 1/3 左右，起针点保证花型基本居中。

The width of speed correction pattern should be about 1/3 of the total number of needles, and the starting



point should ensure that the pattern is basically centered.

速度修正前, 系统参数务必将机头移出使能 -> 打开, 否则无法正确测速而造成修正数据不符合要求。  
Before speed correction, the "Carrier move out" must be enabled in the system parameters; otherwise, the speed can not be measured correctly, resulting in non-compliance of the correction data.

系统参数设定 (1/2)

<b>系统基本参数</b>	<b>(23)</b>	纱嘴电磁铁高压	4
针零位	152.0	机头移出使能	打开
左系统纱嘴右行零位	126	报警灯音量	0
左系统纱嘴左行零位	122	报警持续时间	0
机头左限位	0	自动锁行	打开
机头右限位	559	语言切换	
横机壹英寸针数	7	行程优化	打开
横机总针数	364	加油控制配置	主控加油
同步带齿距校正	13771	日光灯配置	双灯双控
电磁铁高压	4	翻针度目置零	关闭
		针位置:	0.7

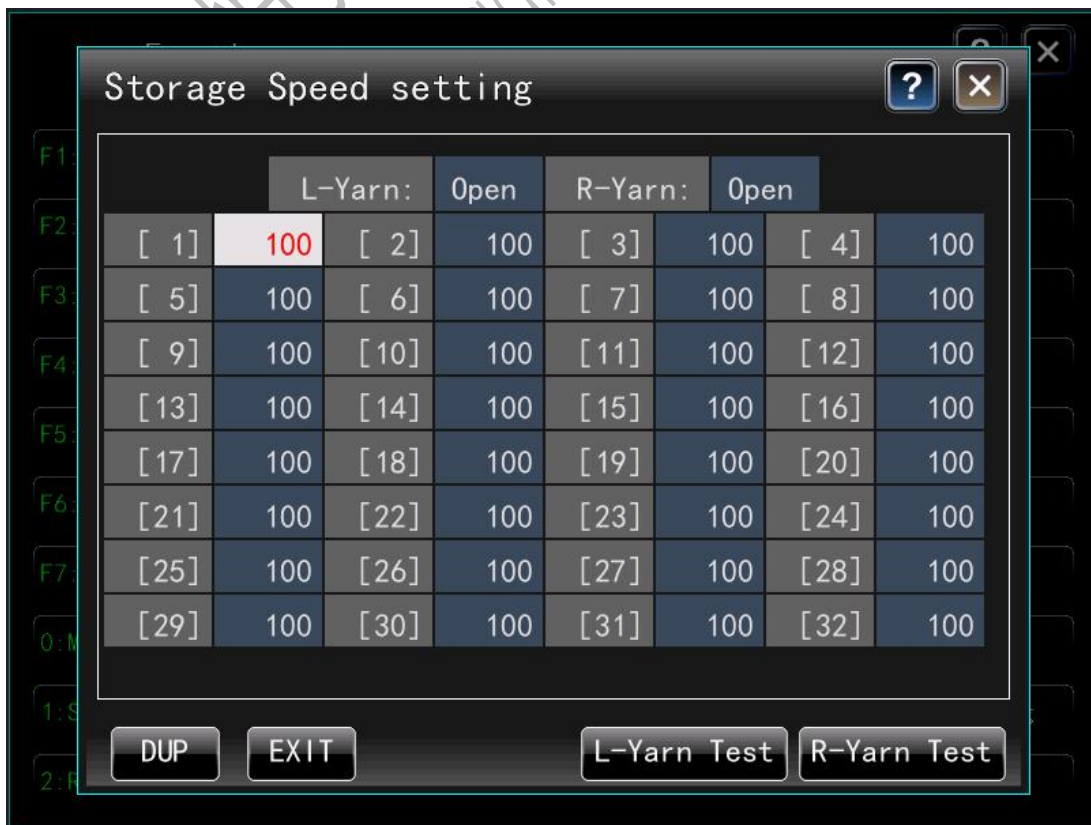


## 21. 送纱器速度设置

### Storage speed setting

跳转到送纱器速度设置窗口，该设置只对使用力矩电机送纱机构有效。

Skip to the feeder speed setting window, which is only valid for the feeder mechanism using torque motor.



## 22. 回转距编辑

### Rotator edit(Turn distance editing)





跳转到回转距编辑窗口，预留支持。

Skip to the rotation distance editing window, and reserve is supported.

目前花型回转距离设置是全局参数没有支持按段、行等进行微调设定，增加回转距编辑可以更好的根据花型编织需要进行独立的微调控制提高编织效率。

At present, the rotation distance of the pattern adopts global parameter setting, which cannot be fine tuned by segments and rows. Increasing rotation distance can improve knitting efficiency because it enables better independent fine-tuning control according to the needs of pattern knitting.

例如针对电机控制三角的机构当上、下行工位动作转动角度大时，为防止高速高效编织中出现进入编织区前动作三角没有及时到位问题可以适当的加大回转距离进行规避。

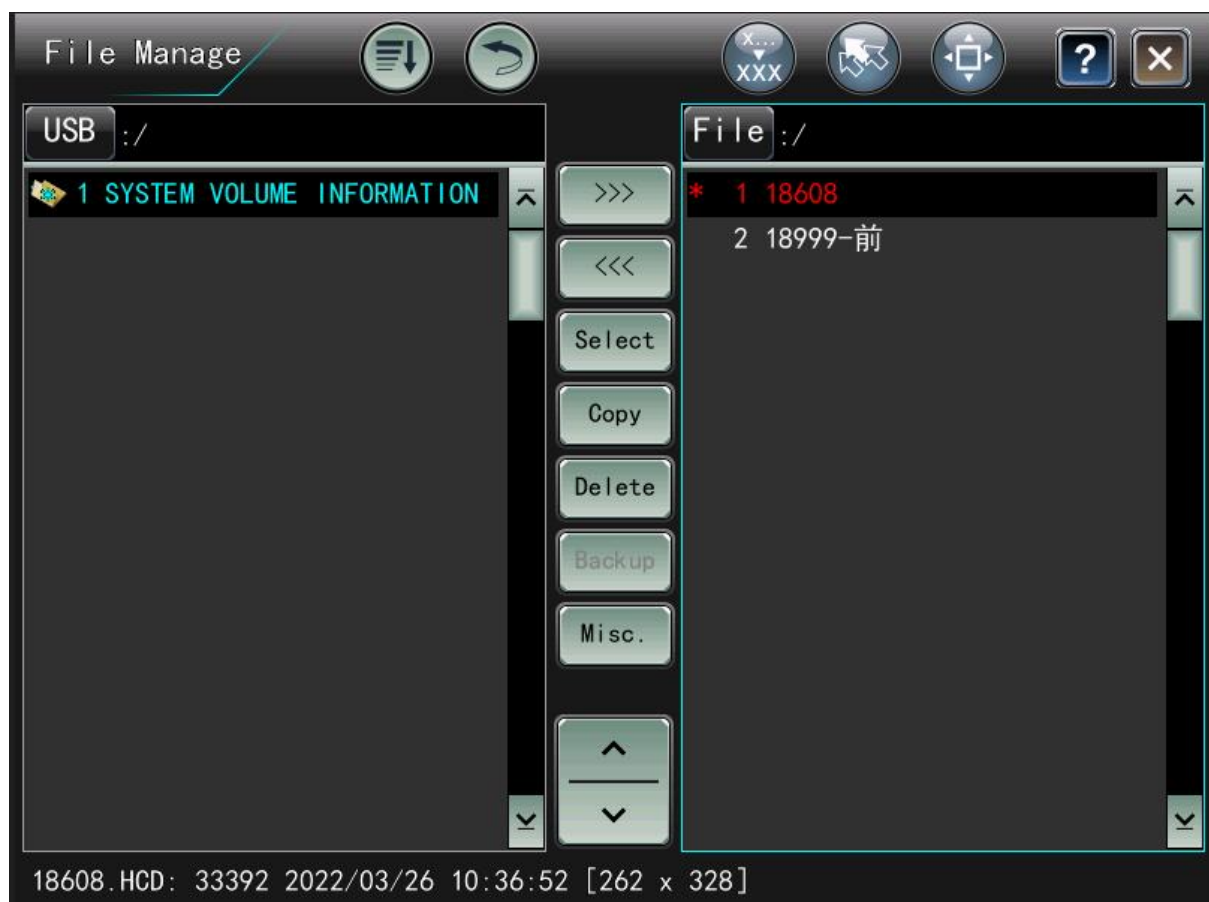
For example, for the motor-controlled cam mechanism, when the rotation angle of the upper and lower row stations is large, the rotation distance can be appropriately increased to avoid the problem that the cam may not be in place timely before entering the knitting zone during high-speed and efficient knitting.



## 2. 文件管理

### File manage





控制系统全部的文件汇集在此输入、输出、删除、参数复制、分期付款加、解锁、查看等操作。  
All the files of the control system are collected here for input, output, deletion, parameter copying, installment payment, unlocking, viewing and other operations.

### ● 文件管理窗口包含以下部分

**The file management window contains the following parts:**

- 窗口顶部包括排序操作、回退、多选、文件管理器选项设置等按钮。  
The top of the window includes buttons such as sort operation, rollback, multiple selection, file manager option setting and so on.
- 中间由左、右文件管理分栏及中间功能按钮区，分栏带有滚动条，可以单击条状区域中的空白处滚屏，左侧分栏默认为 USB 驱动盘符。  
The middle is divided into the left and right file management columns and the middle function button area, and the sub-button has scroll bars. You can click the empty space in the bar area to scroll, and the left column defaults to USB drive letter.
- 底部显示被选择文件的详细属性，文件、文件夹名，日期，文件大小等。  
Detailed attributes, file, folder name, date, file size, and the likes of the selected file are displayed at the bottom.
- 左侧：U 盘、网络云等介质文件。  
Left: U disk, network cloud and other media files.

- 中间：操作按钮。  
Middle: Operation button.
- 右侧：系统内存花型文件。  
Right: System memory pattern file.

左、右两侧均支持文件输入、输出、删除等操作。

Left and right sides support file input, output, deletion and other operations.

**\*\*文件操作支持多级目录结构\*\***

**\*\* The file operation supports multilevel directory structure. \*\***

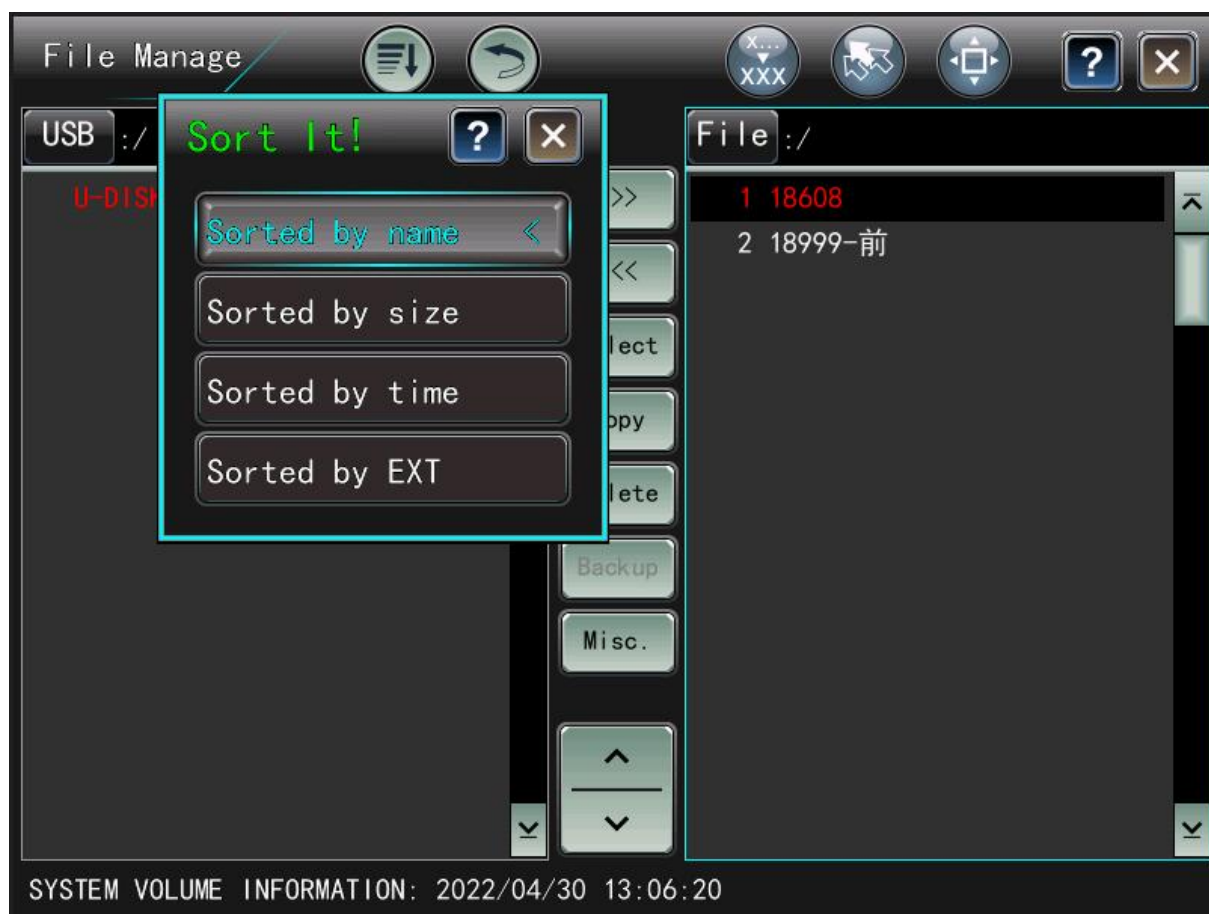
U 盘文件系统只支持 FAT/FAT32，如果是其他 exFAT、NTFS 等文件系统将提示错误。

U disk file system only supports FAT/FAT32. If other file systems like exFAT, NTFS are used, it will prompt errors.

## 2.1 排序操作

### Sort It(Sort operation)





按文件名 By file name	按 [0 - 9]、[A - Z] 顺序、逆序排列。 Sort in the order of [0-9] and [A-Z], or in reverse order.	
按文件大小 By file size	按文件由小到大，由大到小排序。 Sort in the ascending order and descending order	
按文件时间 By file time	按文件生成日期从前到后，或从后到前排序。 Sort in file generation date from forth to back, or from back to forth.	
按文件后缀 By file suffix	HCD	恒强制版上机文件 Hengqiang program computer file
	SAV	工作参数 Working parameters
	CFG	系统参数 System parameters
	MFK	成组编织 Grouped knitting
	PNG	厂标、图形文件 Factory logo, graphic file
排序操作	单击切换，排序习惯将自动保存以便下次使用。	

Sort operation	Click to switch, and the sorting habit will be automatically saved for next use.
----------------	--

## 2.2 返回上级目录

### Return to previous directory



返回上一级文件目录，从当前目录返回，如连续单击则最终至根目录。

Return to the previous file directory from the current directory, and finally to the root directory after continuous click.

长按 5 秒可直接返回根目录。

Press for 5 seconds to return directly to the root directory.

## 2.3 显示文件全名

### Display full file name



暂未支持。

Not supported yet.

## 2.4 多选模式

### Multi-Sel(Multi-selection mode)



单击触发按钮后窗口左下角有提示[多选模式]，根据当前所激活一侧窗口选择多个文件进行复制、删除等操作。

After clicking the trigger button, a prompt stating [Multi-selection mode] will appear in the lower left corner of the window. Select multiple files for copying and deleting according to the window in the currently activated side.





备注:

Note:

多选模式支持文件多选、文件夹多选、文件夹及单独文件组合等。

Multi-selection mode supports multi-selection of files and folders, and combination of folders and individual files, etc.

## 2.5 文件管理器选项设置

### File manager option setting



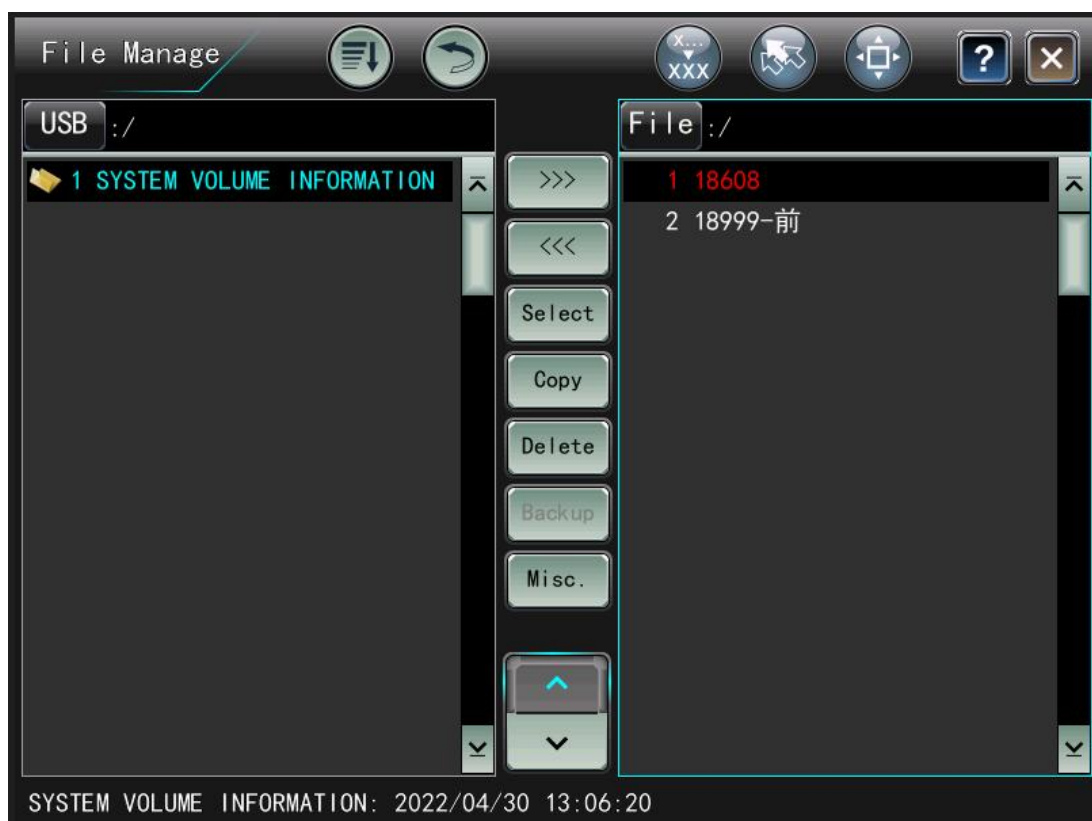


<p>显示后缀名 Display suffix name</p>	<p>切换：打开/关闭 Switch: Enabled/disabled 打开：显示文件后缀名。 Enabled: Display the file suffix name. 关闭：关闭后缀名显示。 Disabled: Disable suffix name display.</p>
<p>多选时确认全部 Confirm all during multiple selection.</p>	<p>打开：静默模式，多选模式触发时，选择多个文件进行复制、删除等操作时，不再逐一弹出 [确认操作]。 Enabled: When Silent mode and multi-selection mode is triggered, if multiple files are selected for copying, deleting and other operations, the [Confirm] prompt will not pop up one by one. 关闭：多选模式触发时，选择多个文件进行复制、删除等操作时，逐一弹出 [确认操作]，每个文件都需要进行确认操作 Disabled: When multi-selection mode is triggered, if multiple files are selected for copying, deleting and other operations, the [Confirm] prompt will pop up one by one, namely, the operation should be confirmed for each file.</p>
<p>CNT 格式禁用 CNT format disabled</p>	<p>切换：打开/关闭 Switch: Enabled/disabled 打开：CNT 格式文件输入时屏蔽显示。 Enabled: CNT format file input is not displayed. 关闭：CNT 格式文件输入显示。 Disabled: CNT format file input is display.</p>

## 2.6 上、下滚屏按键

### Scroll up and down buttons





单击上、下按键选择激活一侧窗口的文件，按行移动。

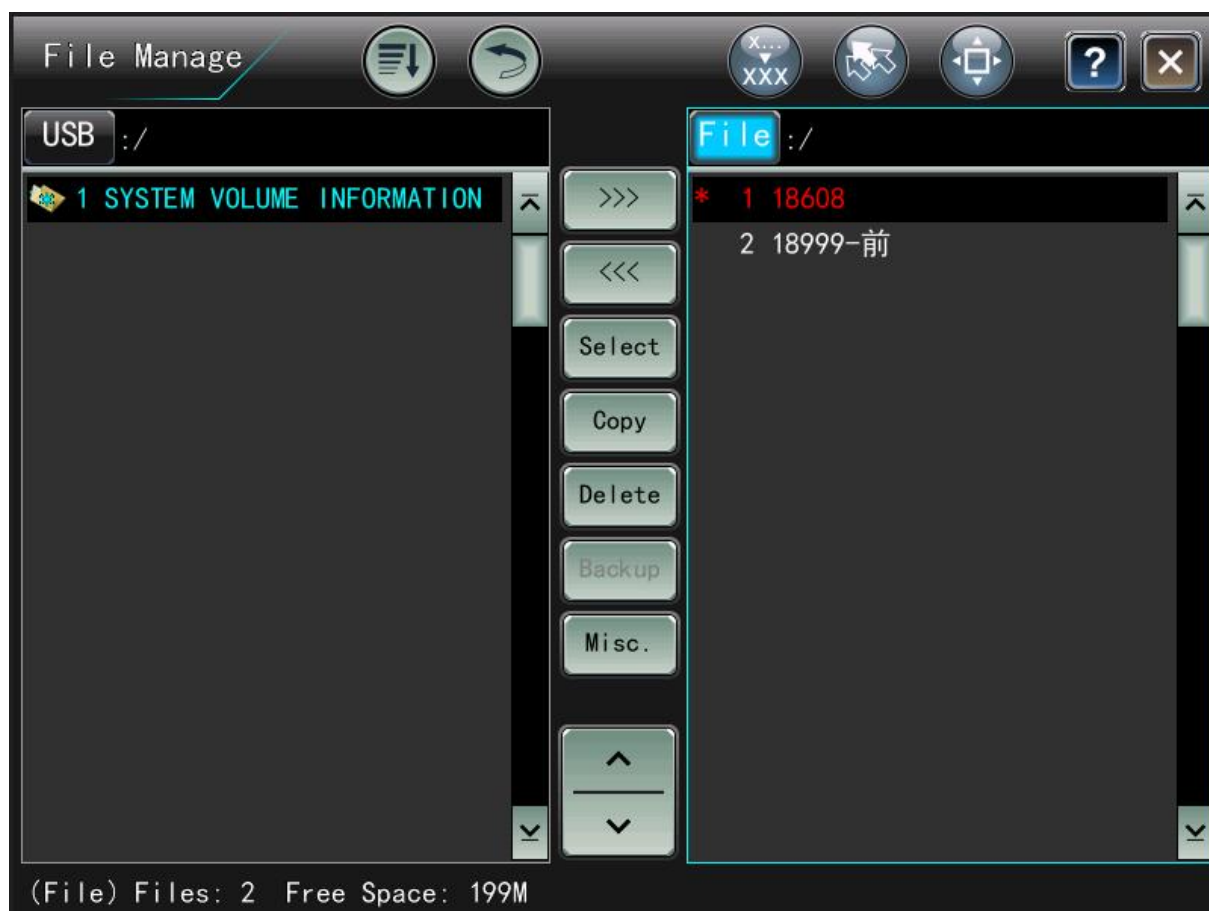
Click the up and down buttons to select the file in the activated-side window and move it by row.



## 2.7 系统内存空间与当前路径文件个数查询

### System memory space and query of the number of current path files



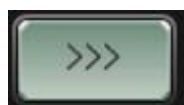


单击 <File>, 窗口左下角显示当前路径文件个数和系统剩余内存空间。

Click <File>, and the lower left corner of the window will display the number of files in the current path and the remaining memory space of the system.

## 2.8 文件输入

### File input



文件、文件夹等从左往右输入到指定目录或根目录下，建议独立文件最好是输入至相应文件夹中便于管理，或直接在 U 盘上建好文件夹再输入。

Files, folders, and the likes are entered into the specified directory or root directory from left to right. It is suggested that independent files should be entered into the corresponding folder for easy management. Or, a folder can be directly created on the U disk.

根目录文件总数受文件系统限制，超出后将无法列表显示。

The total number of root files is limited by the file system, and will not be displayed by list after the limit is exceeded.

默认输入到当前编织花型的路径下，为防止含新文件夹花型输入到当前目录下后再选择其中新花型出现**当前目录->子目录->子目录**...这种递归嵌套输入问题，输入当前目录时弹出提示当前目录、根目录选择。

The files are default to be input to the path of the current knitting pattern, in order to prevent the recursive nested input problem, namely, when files containing new pattern are entered to the current directory, and then select the new pattern inside, the **current directory -> subdirectory -> subdirectory** may occur. When the current directory is input, the current directory and root directory selection will pop up.

单击选中文件后，下方提示栏下详细显示文件名称、后缀、大小、最后修改日期，若是 HCD 格式花型文件，则最后显示花型**最大针宽度\*总行数**。

After clicking the selected file, the file name, suffix, size and last modified date will be displayed in detail in the lower prompt bar. If the pattern file is in HCD format, the **maximum needle width × total number of rows** will be displayed for the pattern at the end.

提醒：

Reminder:

当 U 盘中输入、覆盖系统同名花型文件时，会弹出提示：

When the pattern file with the same name is input in the U disk that may overwrite the file in the system, a prompt will pop up stating:

1、花型文件已存在，是否覆盖？

Pattern file already exists. Sure to overwrite it?

单击 [确认] 覆盖，单击 [取消] 不覆盖。

Click [Confirm] if you want to override it, and click [Cancel] if you do not want to do so.

2、工作参数文件已存在，是否覆盖？

The working parameter file already exists, do you want to overwrite it?

单击 [确认] 覆盖，单击 [取消] 不覆盖。

Click [Confirm] if you want to override it, and click [Cancel] if you do not want to do so.

HCD 格式花型为系统默认格式，同时为兼容老的 CNT/PAT 等格式，系统支持输入后自动转换为新 HCD 格式，输出将不再支持 CNT/PAT 旧格式。

HCD format pattern is the default format of the system, which is compatible with the old CNT/PAT format. The system supports automatic conversion to the new HCD format after input, and the output will no longer support the old CNT/PAT format.

CNT 格式文件类型及相关说明：

CNT format file types and related instructions:

\*.CNT：花样动作指令文件

\*.CNT: Pattern action instruction file

\*.PAT：选针数据

\*.PAT: Needle selection data

\*.PRM: 循环节约文件

\*.PRM: Cycle saving file

系统除支持制版循环设置同时下位机也可以自行设定。

In addition to supporting program cycle setting, self-setting is also supported in the lower computer.

\*.SAV: 花型工作参数文件

\*.SAV: Pattern working parameter file

度目、主、副罗拉、编织速度、纱嘴停放点等设置参数。

Set parameters such as stitch, main and sub-rollers, knitting speed, yarn feeder stopping point, etc.

\*.YTX: 嵌花编织纱嘴位置信息

\*.YTX: Intarsia knitting yarn feeder position information

CNT, PAT 是组成编织花样的必要文件, 这 2 个文件必须同时存在, 否则系统将报警提示缺少文件。

CNT and PAT are necessary files for knitting patterns, and these two files must exist at the same time. Otherwise, the system will prompt "missing files".

一般不建议将同名的 CNT/PAT 与 HCD 格式花型放置在同一目录中。

It is generally not recommended to put CNT/PAT with the same name in the same directory as the HCD format patterns.

文件管理器选项设置-新增花型格式过滤:

File manager options settings - new pattern format filter:

根据横机生产厂家 ID, 增加了可以自行选择格式过滤功能如只输入 HCD 格式, 禁止输入 CNT 格式, 放置同目录中同名不同格式花型文件相互覆盖问题。

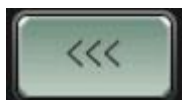
According to the flat knitting machine manufacturer ID, the filter function for format selection is added, such as inputting only HCD format, forbidding inputting CNT format, placing pattern files with the same name and different formats in the same directory for mutual overriding.

例如, HCD 格式输入后又有同名 CNT 转换输入覆盖先前输入的 HCD 格式, 而 HCD 格式功能远多于 CNT, 造成花型未按要求实现。

For example, after HCD format is input, if a CNT conversion file input with the same name overrides the previously input HCD format, the pattern will not be realized as required because HCD format has far more functions than CNT.

## 2.9 文件输出

### File output



文件从系统内存中往左侧 U 盘等介质中输入。

Files are input from the system memory to the left U disk and other media.

## 2.10 花型选择

### Pattern selection



选择存储在系统 FLASH 中的花型用来编织、查看 CNT、PAT 等信息。

Select the pattern stored in the system FLASH for knitting, and viewing CNT, PAT and other information.

备注:

Note:

选择花样时自动对花型<编织幅宽针数>进行针板总针数限定范围检测，如超出则弹出提示 [花样太宽，请重新选择!]，请通过制版或花型裁剪修改满足条件检查。

When selecting a pattern, automatically detect the limited range of the total number of needles on the needle plate for the pattern <knit width>. If this limit is exceeded, a prompt will pop up stating [The pattern is too wide, please re-select!]. Please check that the conditions are met by program or pattern cutting modification.

## 2.11 参数复制

### Parameter copying



不同花型文件的工作参数复制。

Copy the working parameters of different pattern files.

单击 [>>>] 图标弹出 <工作参数复制> 提示框，提示 xxx1=>xxx2，表示将左侧选中的花型文件工作参数复制到右侧选中的花型文件中。

Click [>>>] icon to pop up <Working parameter copy> prompt box. When “xxx1=> xxx2” is prompted, it



means to copy the working parameters of the selected pattern file on the left to the selected pattern file on the right.

单击【<<<】图标弹出【工作参数复制】提示框，提示 xxx2=>xxx1，意为将右侧选中的花型文件工作参数复制到左侧选中的花型文件中

Click the [<<<] icon to pop up the [Working parameter copy] prompt box. When “xxx2=> xxx1” is prompted, it means to copy the working parameters of the selected pattern file on the right to the selected pattern file on the left.

## 2.12 花型删除

### Pattern deletion



删除左、右分栏激活一侧中的花型等文件、文件夹。

Delete files and folders such as patterns in the active side of the left and right columns.

## 2.13 参数备份

### Parameter backup

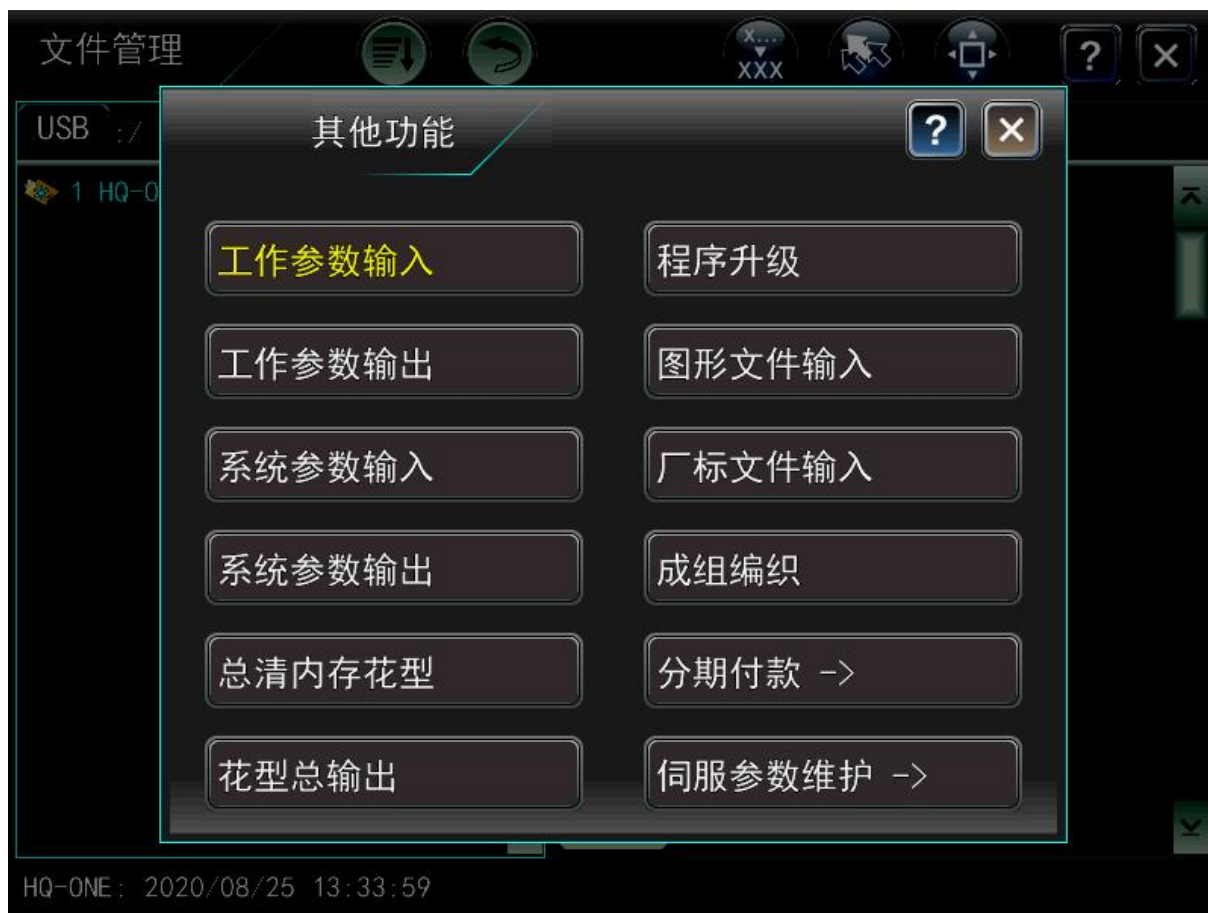


系统参数备份，

Back up system parameters.

## 2.14 其他功能

### Misc(Other functions)





## 1. 工作参数输入

### parameter import

选择 U 盘、SD 卡、网络等存储路径中的花型工作参数复制到另一个花型中并覆盖原有的工作参数。  
Select and copy the pattern working parameters in the U disk, SD card, network and other storage path to another pattern and override the original working parameters.

工作参数复制方便用于同类、基本同类花型无需重新调试或只需少量修改相关工作参数即可上机编织，例如同款不同尺码大小间等。

Working parameter copying is convenient for knitting similar and basic similar patterns on the machine without re-debugging or only requiring the modification of only a small amount of relevant working parameters, such as same patterns with different sizes and intervals.

工作参数是花型的重要参数之一请妥善保管，可用输出花型（花型文件+工作参数）或独立保存其中的工作参数，独立保存的工作参数系统自动以该花型名输出，后缀 SAV。

Working parameters are one of the important parameters of the pattern. Please keep them properly by outputting the pattern (pattern file + working parameter) or saving the working parameters independently. The working parameters saved independently will be automatically output by the name of the pattern, with the suffix SAV.

- **工作参数项目：**

**Working parameter items:**

度目 /主罗拉 /副罗拉 /速度 /纱嘴停放 /起底板 /起针点等。

Stitch/main-roller/sub-roller/speed/yarn feeder stopping/pull board/starting point, etc.

## 2. 工作参数输出

### Work para output

选择花型的工作参数输出至 U 盘、SD 卡、网络等存储介质中。

Select the working parameters of the pattern and output them to U disk, SD card, network, and other storage media.

可以使用文件管理中的多选模式一并输出。

You can use the multi-selection mode in file management to output together.

## 3. 系统参数输入


### System config input

将备份在 U 盘、SD 卡、网络等介质中的系统参数输入、覆盖当前系统内存的系统参数。

Input the system parameters backed up in U disk, SD card, network and other media, and cover the system parameters of the current system memory.





 系统参数输入一般应用在主板硬件更换或者当前主板系统参数异常等，因主控程序不断的迭代更新，系统参数输入时需要考虑不同版本间存在的兼容性问题，输入后需检查重要的参数是否异常。

The system parameter input is generally used for main board hardware replacement or abnormal system parameter error of the current main board. Due to continuous iterative update of the master controller program, compatibility problems between different versions should be considered when inputting system parameters, and whether important parameters are abnormal should be checked after inputting.

系统参数输入、覆盖后必须关机重启后生效。

Inputting and overriding of system parameters take effect only after the machine is powered off and restarted.

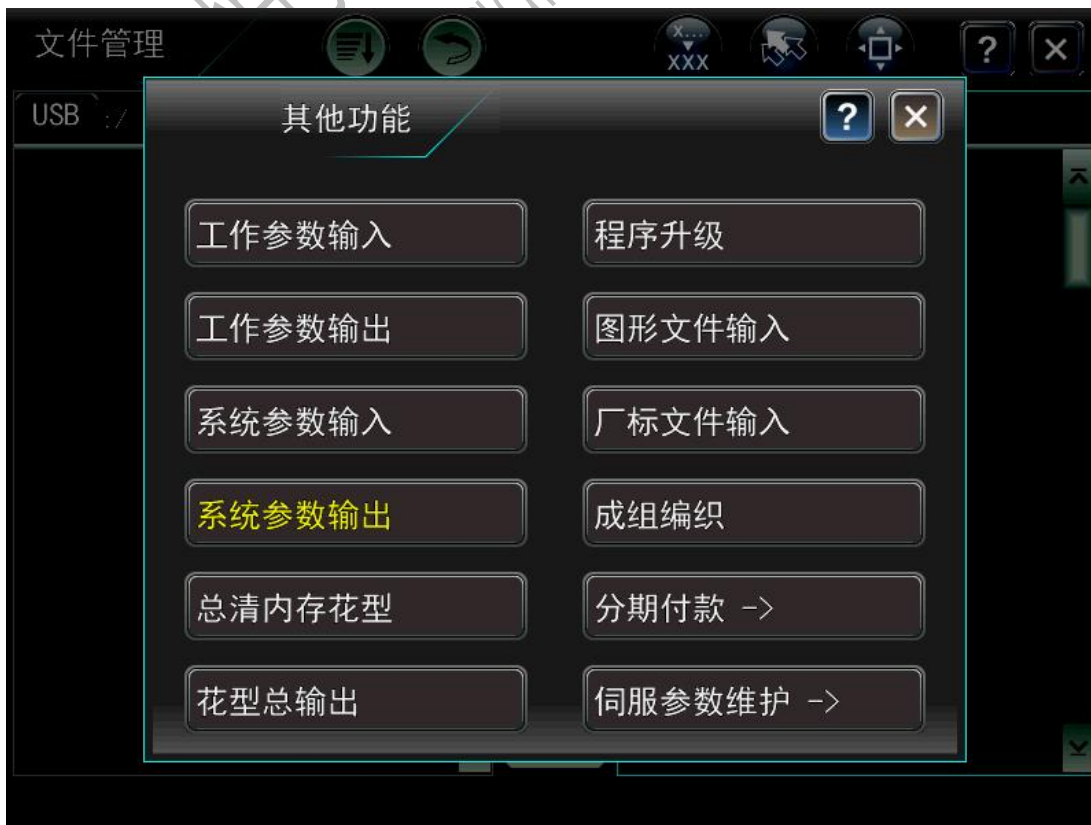
## 4. 系统参数输出

### Sys para output

将系统内存中当前使用的系统参数输出到 U 盘、SD 卡等介质中备份保存。

Output the system parameters currently used in the system memory to U disk, SD card and other media for backup and storage.







请输入密码：8888

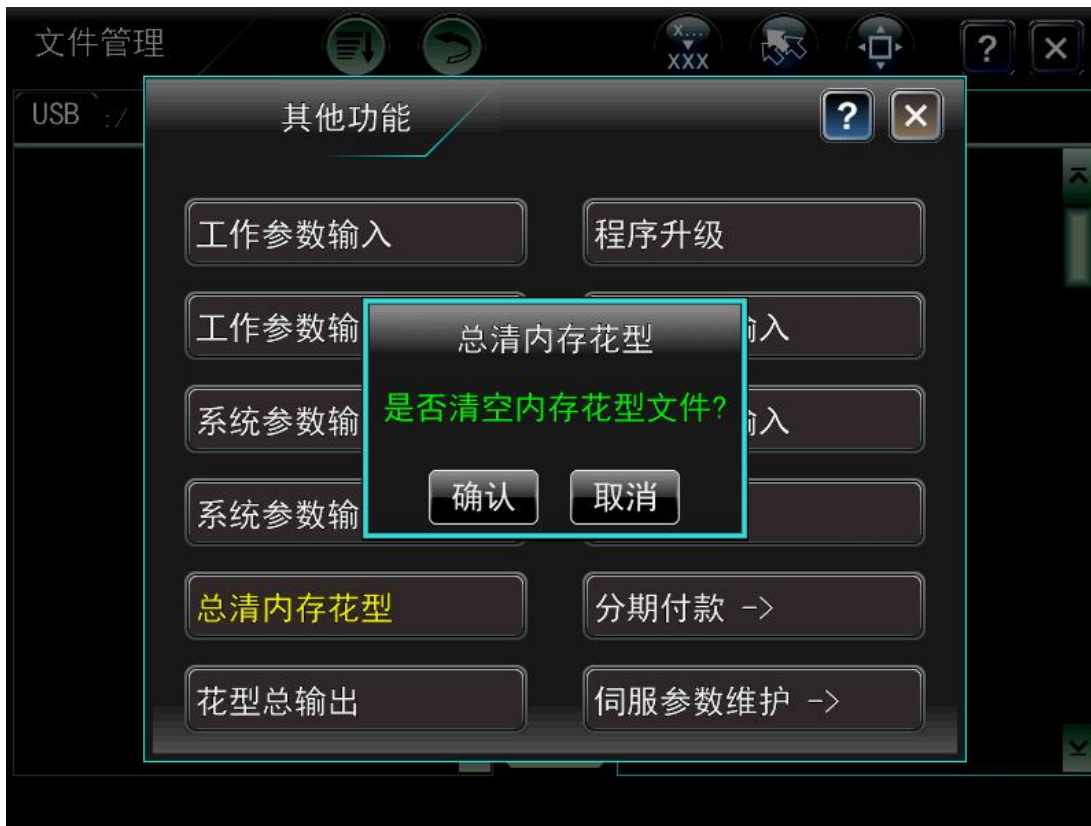
Please enter the secret key: 8888

## 5. 总清内存花型

### PATTERN RESET(Total patterns cleared from the memory)

清空系统内存中的全部花型文件、废弃文件等，该操作过程不可逆请谨慎使用。

Empty all pattern files and discarded files in the system memory. Please operate this with care as it is irreversible.



总清内存花型后，将无法退回至运行窗口，此时必须重新输入花样并选择后方可至运行窗口并自动进入复位归零状态。

After the total patterns are cleared from the memory, it is unable to return to the running window. At this point, you must re-enter the pattern and select it before you can go to the running window, which can automatically enter the reset and zero returning state.

## 6. 花型总输出

### All PAT export(Total pattern output)

将系统内存中的全部花型文件（含目录）输出至 U 盘根目录下，系统自动创建以主板唯一 ID 命名保存（按内存文件目录结构）。

All the pattern files (including directories) in the system memory are output to the root directory of U disk. The system automatically creates and saves them with the unique ID of the main board (according to the directory structure of memory files).

## 7. 程序升级

### Upgrade

主控、机头小主板、副控、各种控制单元等程序升级。

Update the programs of the master controller, small main board of the carrier, auxiliary controller, and various control units.







请输入密码：8888

Please enter the password: 8888



升级有风险，请谨慎升级，在主控升级之前务必备份系统参数至 U 盘等介质中。

Given its risk, please update the program with care. Be sure to back up system parameters to U disk and other media before upgrading the master controller.

主控程序迭代更新至某一版本后，因程序结构变化很大将不再提供程序回退及旧版本升级，请务必主意程序更新说明。

After the master controller program is iterated and updated to a certain version, due to great changes in the program structure, program rollback and old version update are no longer available. Please be sure to note the program update instructions.

升级完成后需关机重启。

Shut down and restart the machine after the update is completed.

## 8. 图形文件输入

### File input(Graphic file input)

系统程序支持的各种专用文件输入系统内存中，从 U 盘介质选择，可使用文件管理的多选模式一并



输入。

All kinds of special files supported by the system program are input into the system memory, which can be selected from the U disk medium, and input together with the multi-selection mode in file management.





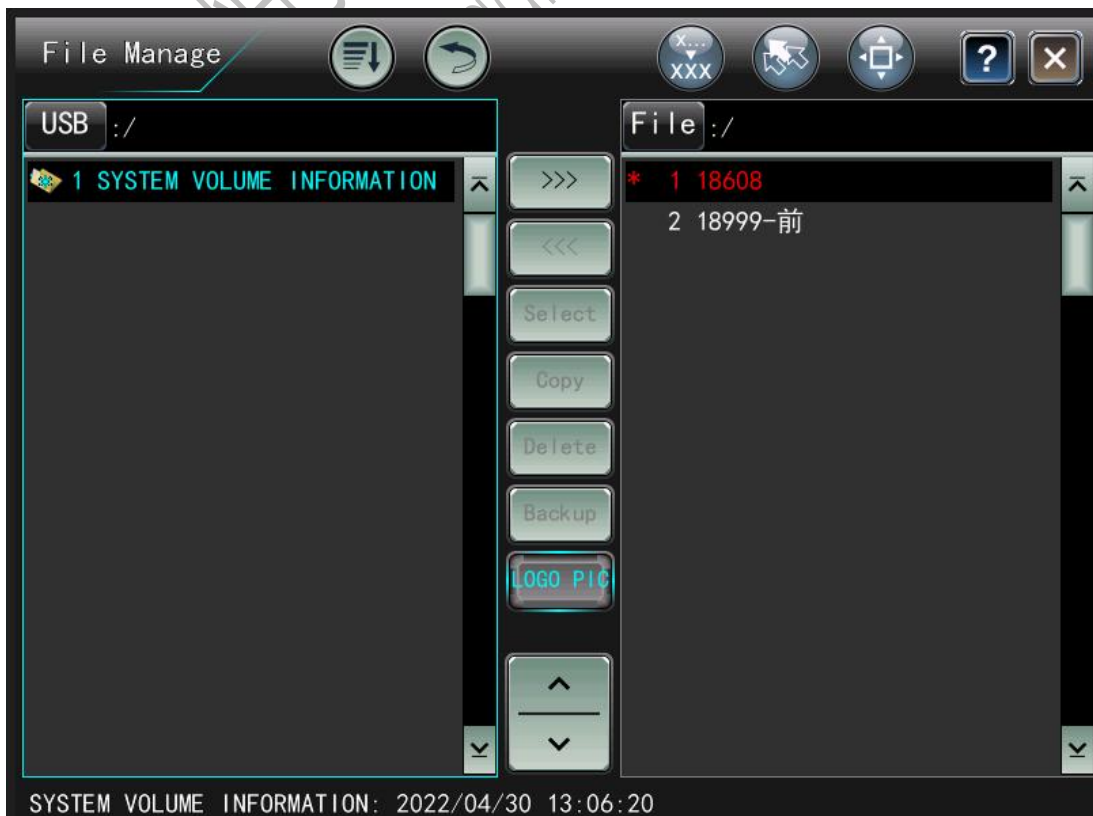
请输入密码：8888

Please enter the password: 8888

## 9. 厂标文件输入 Icon file import

输入厂标文件至系统内存中。

Enter the factory label file into the system memory.



## 10.成组编织

### MFK(Grouped knitting)

成组编织花型的创建、修改、删除等。

Creation, modification and deletion of group knitting patterns.





## 11.分期付款 ->

### Installment->

分期付款加锁文件输入、解锁、查询、机头重新绑定等。

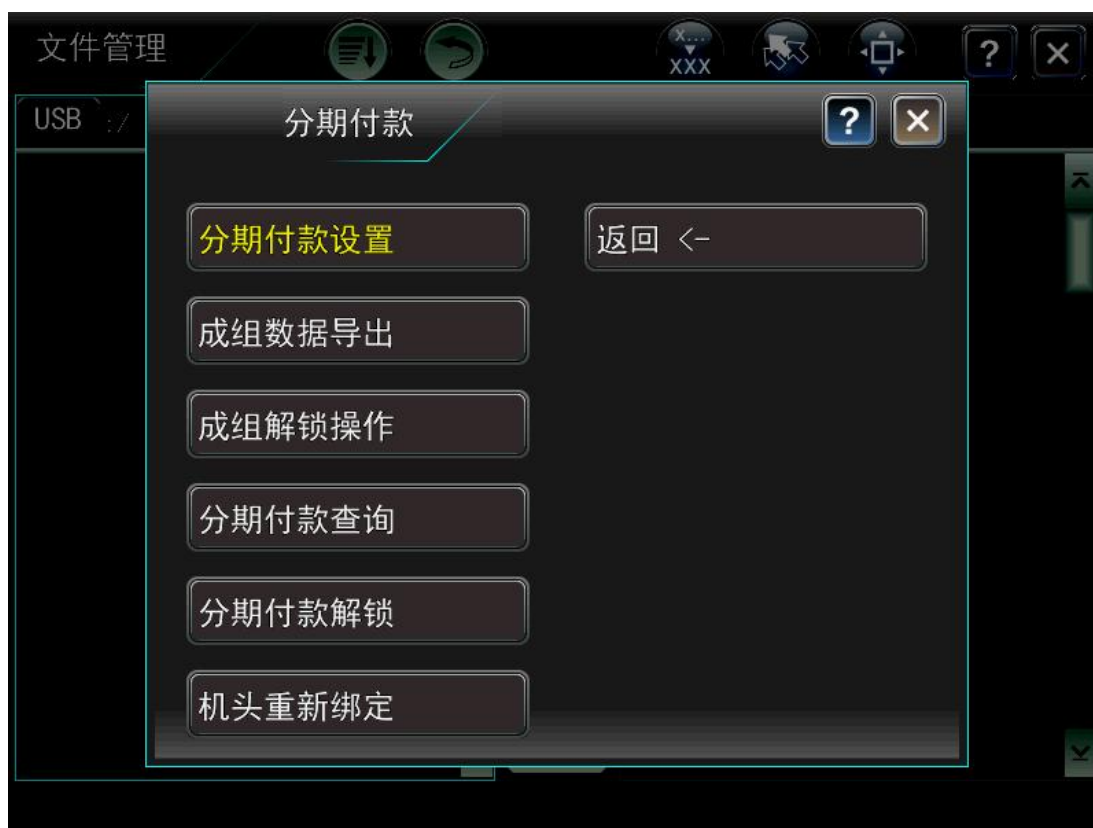
Input, unlock, and query the installment payment lock file, and rebind the carrier, etc.





请输入密码: 8888

Please enter the password: 8888



## 11.1 分期付款设置

### Installment Setup



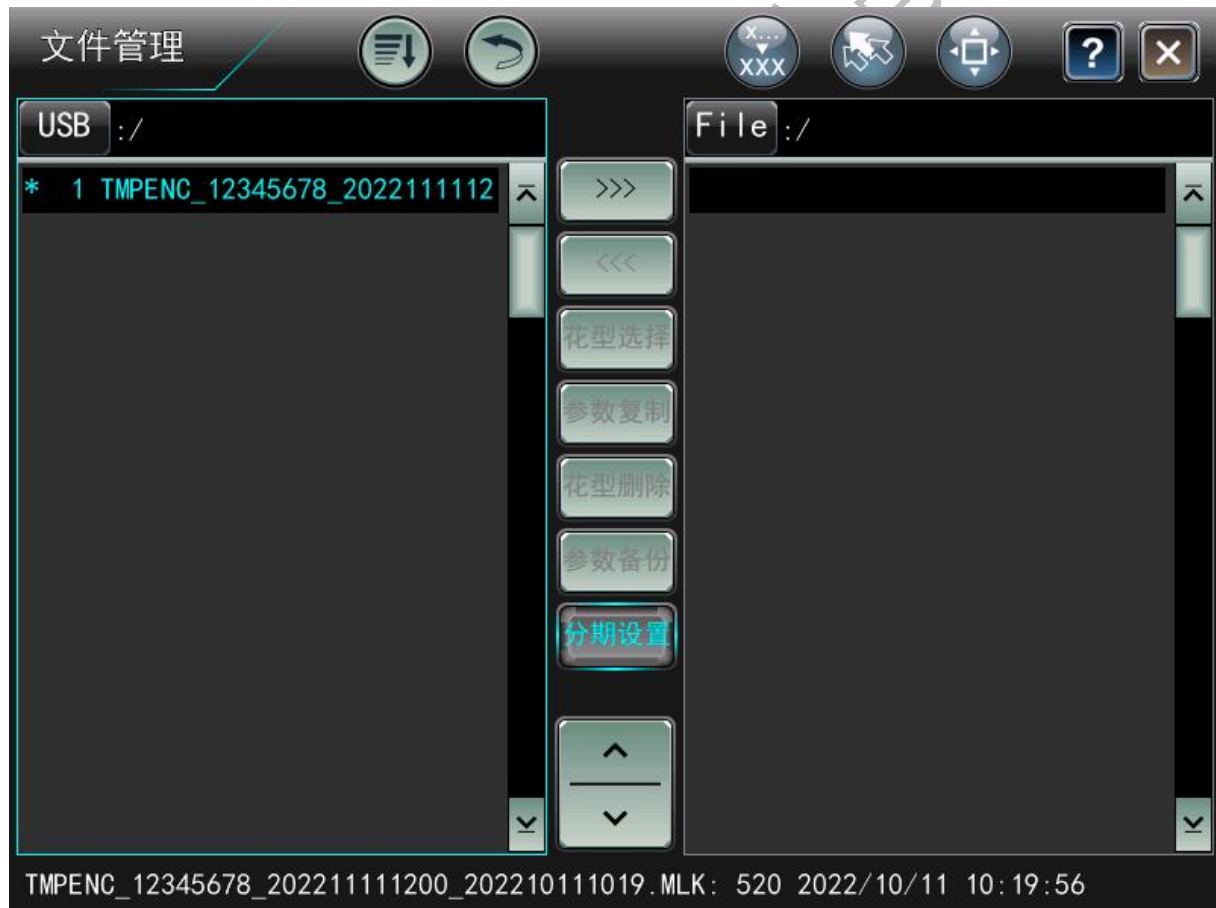
浙江恒强科技股份有限公司  
Zhejiang Hengqiang Technology Co., Ltd.

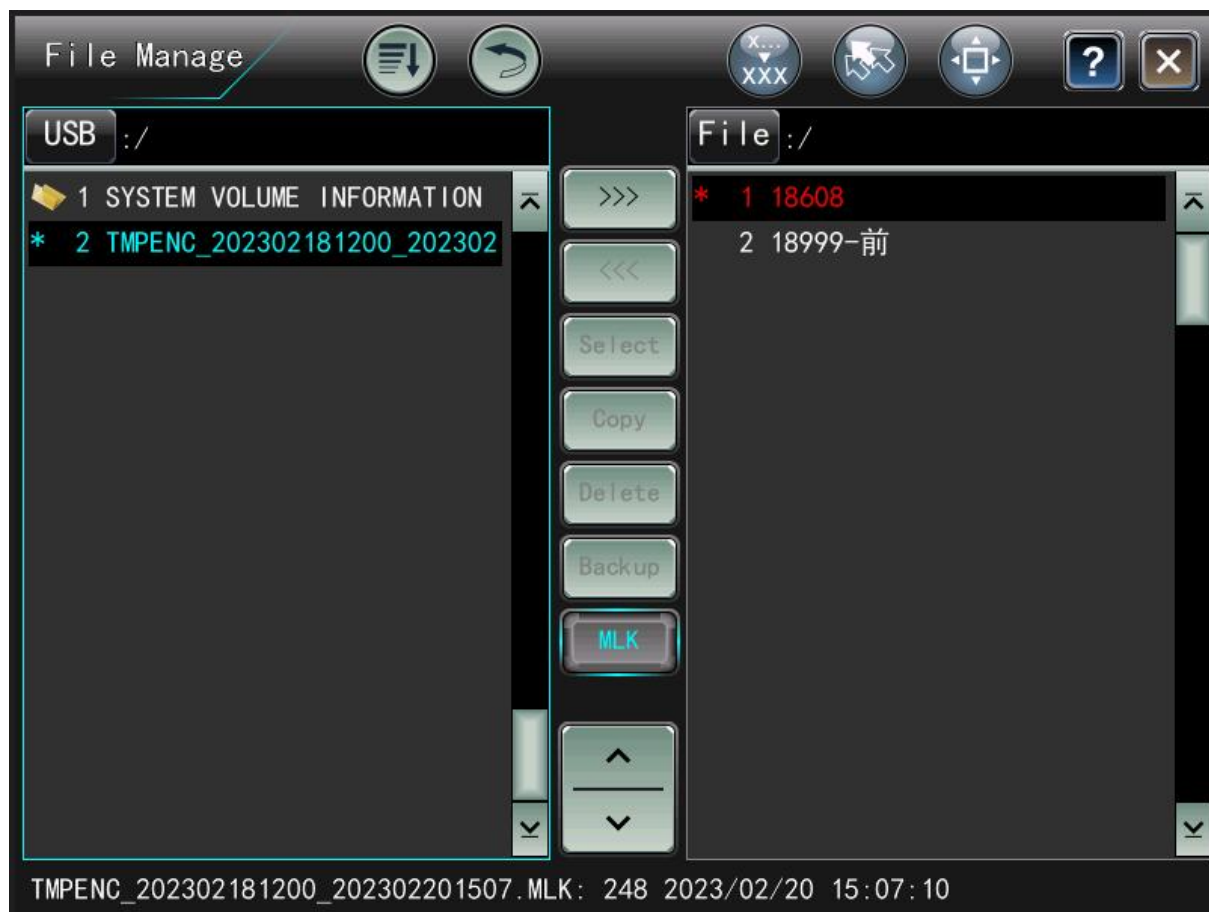
全自动电脑横机控制系统操作说明-全触摸

Operating Instructions of Automatic Control System of Computerized Flat Knitting Machine - Full Touch

首次进入分期付款设置先弹出时间日期核对弹窗，再次验证日期、时间是否正确，无误后按 X 退出保存再进入到加锁文件输入窗口，中间功能按钮区分期设置按钮激活显示。

When entering the installment payment setting for the first time, the time and date check pop-up window will pop up first, and then verify whether the date and time are correct again. After it is correct, press X to exit the save and then enter the locked file input window. The installment setting button in the middle function button area will be activated and displayed.





通过恒强专用加锁、解锁客户端生成的成组加锁的分期付款文件输入到系统进行加锁操作，成功后弹出提示并强制要求关机重启。

Through Hengqiang special locking, the installment payment files generated by the unlocking client are input into the system for locking operation. After success, a prompt will pop up and the shutdown and restart will be forced.

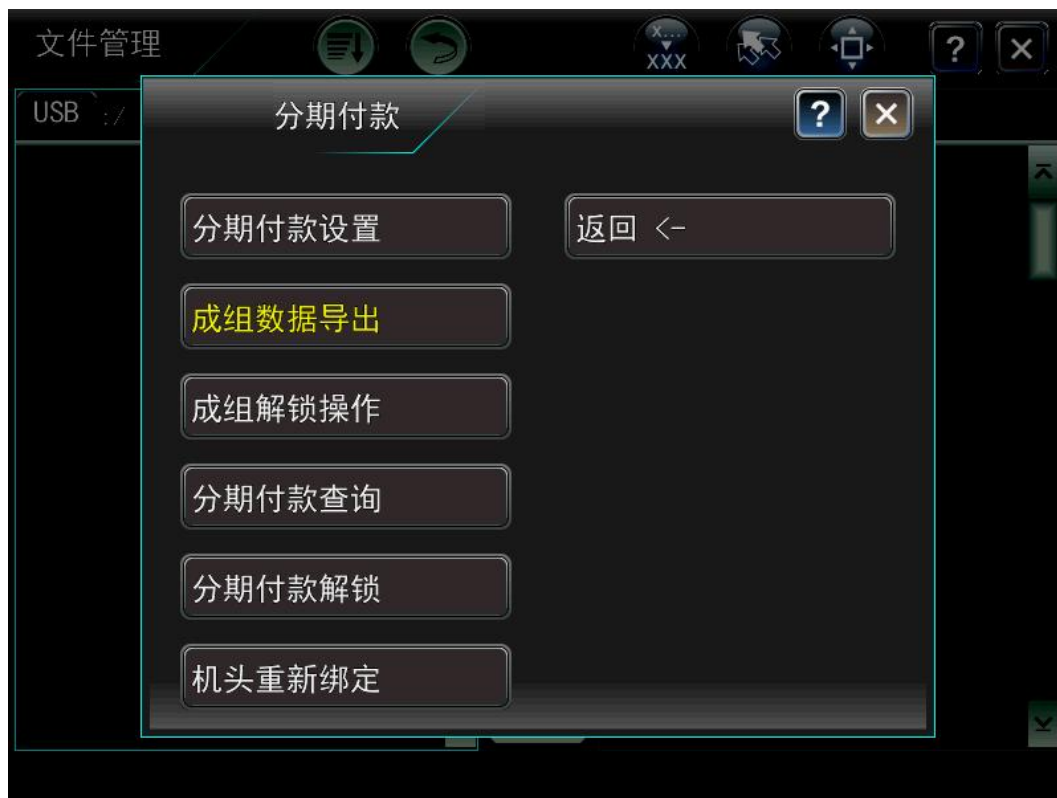
开机后请再到分期付款查询中检查一遍是否正确，查看加锁提示，特别是有机头+主控绑定的提示信息是否正常。

After booting, please check whether it is correct in the installment payment query again, and check whether the lock prompt, especially whether the binding prompt information of carrier + master controller is normal.

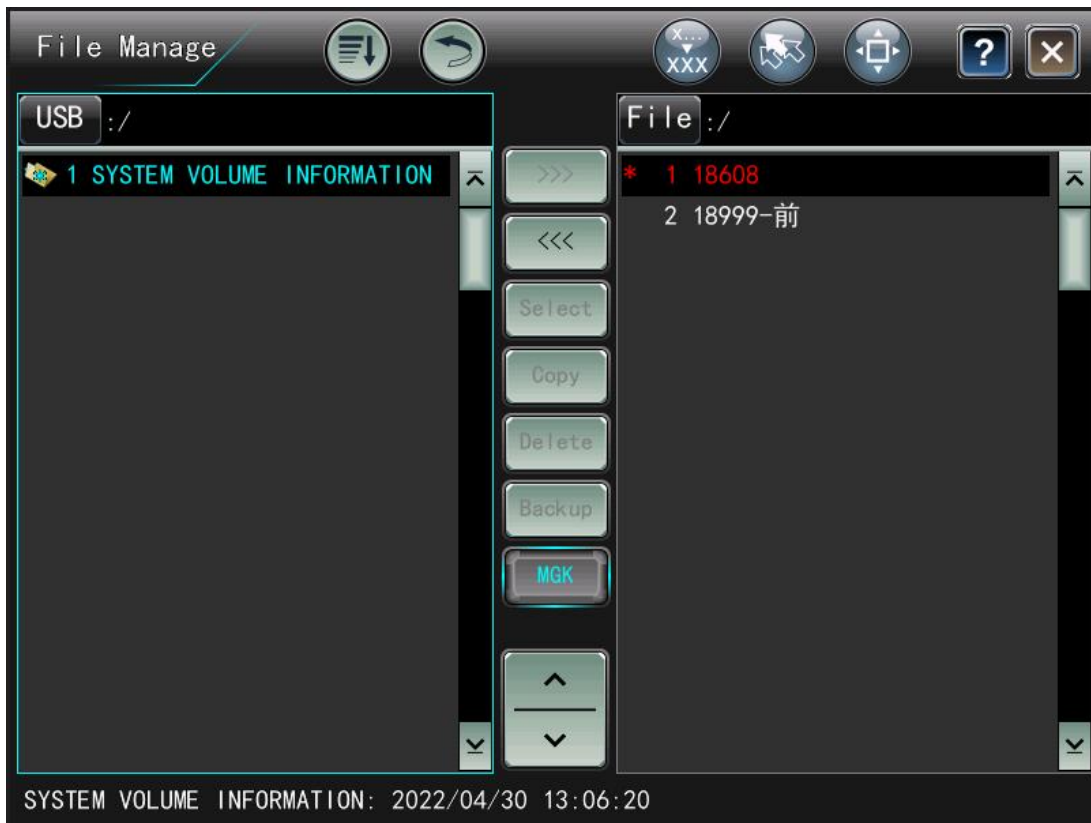


## 11.2 成组数据导出

### Export MGK(Grouped data export)







从成组加锁过的横机中导出成组解锁文件 (\*.MGK) 至 U 盘中，通过恒强专用加锁、解锁工具软件生成成组解锁文件，功能区成组输出按钮激活。

Export the group unlocking file (\*.MGK) from the group locked flat knitting machine to the U disk, generate the group unlocking file through the Hengqiang special locking and unlocking tool software, and activate the group output button in the functional area.

单击 <<< 方向按钮输出成组解锁文件到 U 盘中，正常输出完成后弹出提示。

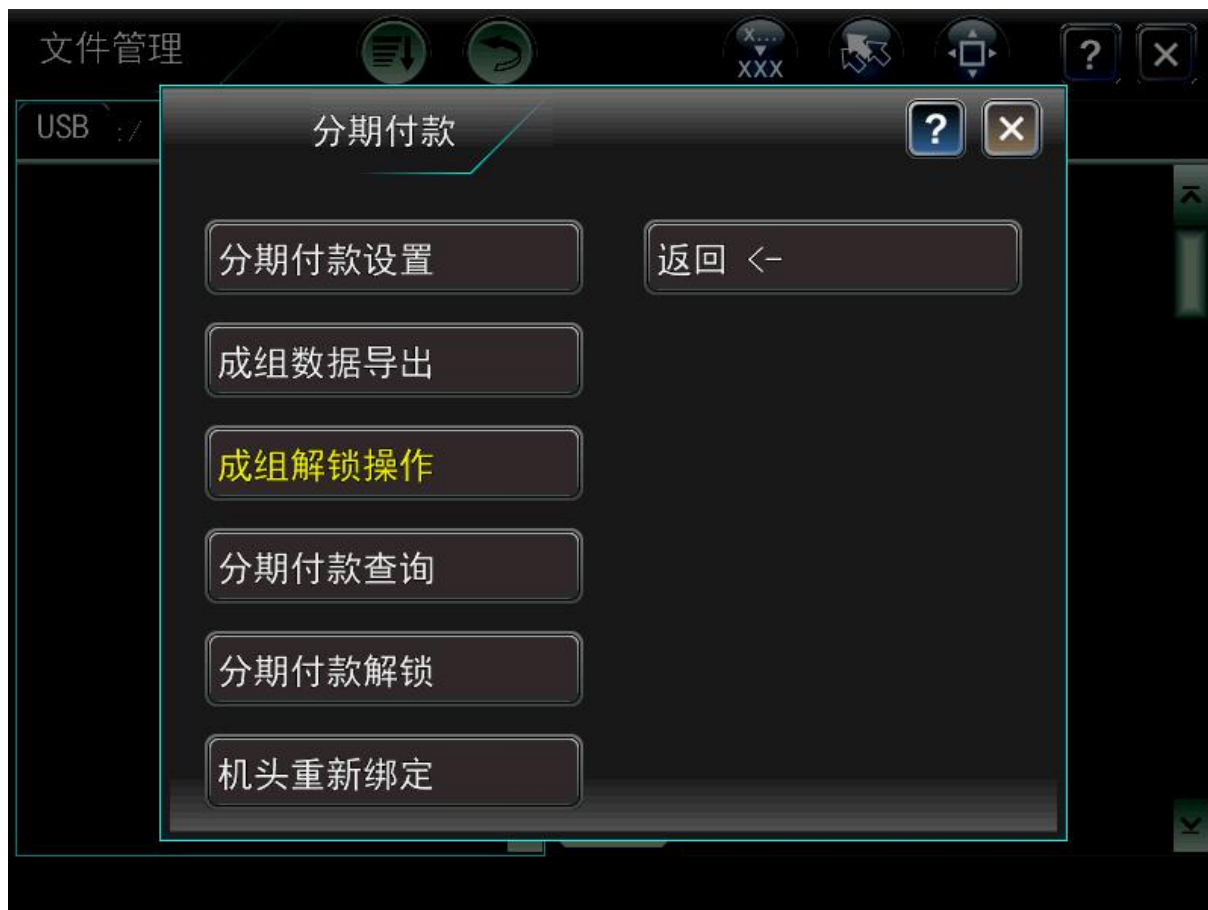
Click <<< Direction button to output group unlock files to U disk, and pop up prompt after normal output is completed.

再次单击成组输出按钮后恢复文件常规操作。

Click the Grouped Output button again and resume the file normal operation.

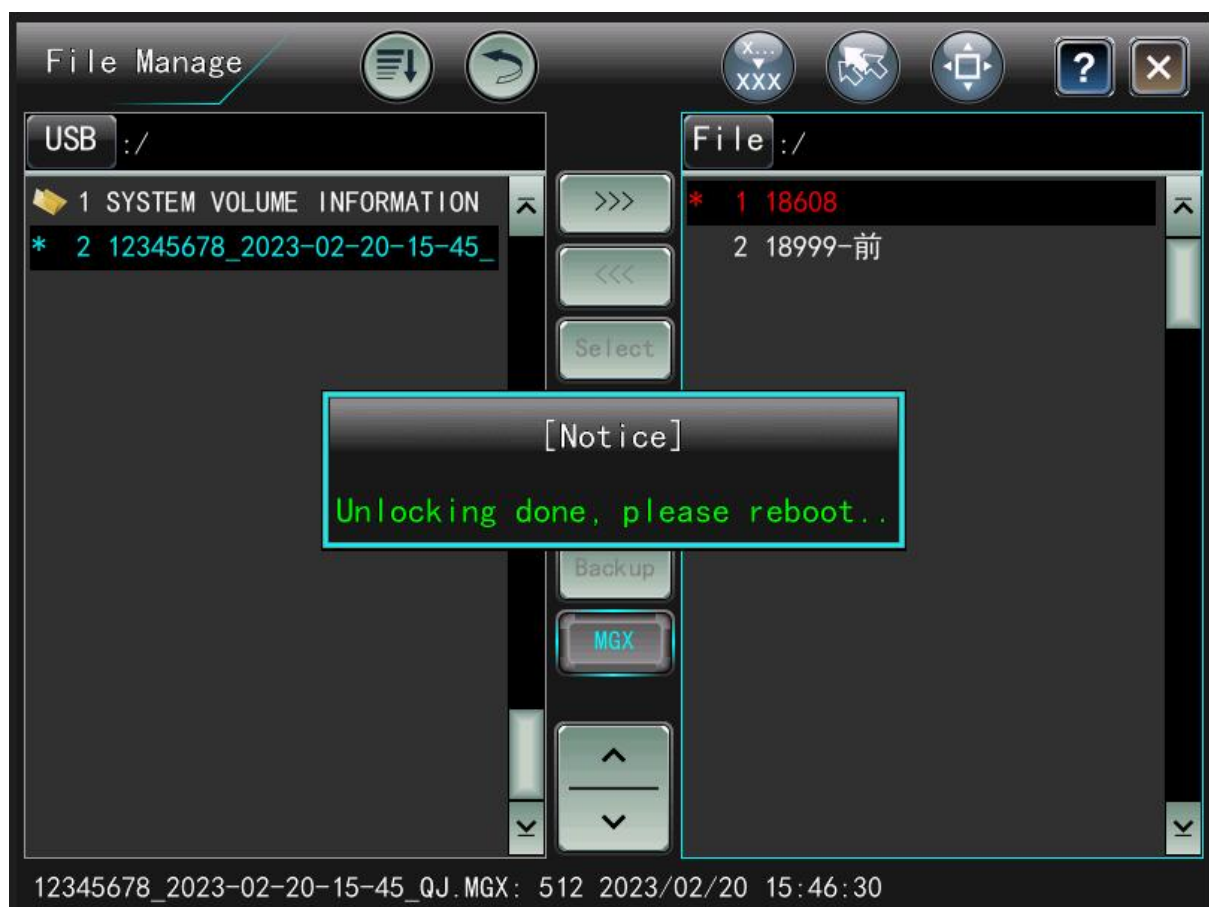
### 11.3 成组解锁操作

#### Import MGX(Grouped unlock operations)









横机解锁操作，将考入 U 盘中的成组解锁文件 (\*.MGX) 导入系统中到对有同一 ID 加锁的机器进行成批解锁操作，成组解锁按钮激活显示。

Flat knitting machine unlocking operation: import the grouped unlocking files (\*.MGX) into the system to perform batch unlocking operation for the same ID lock machine, and the grouped unlocking button is activated and displayed.

单击 >>> 方向键从 U 盘中输入成组解锁文件到系统中解锁，正常情况下弹出成组解锁成功提示。

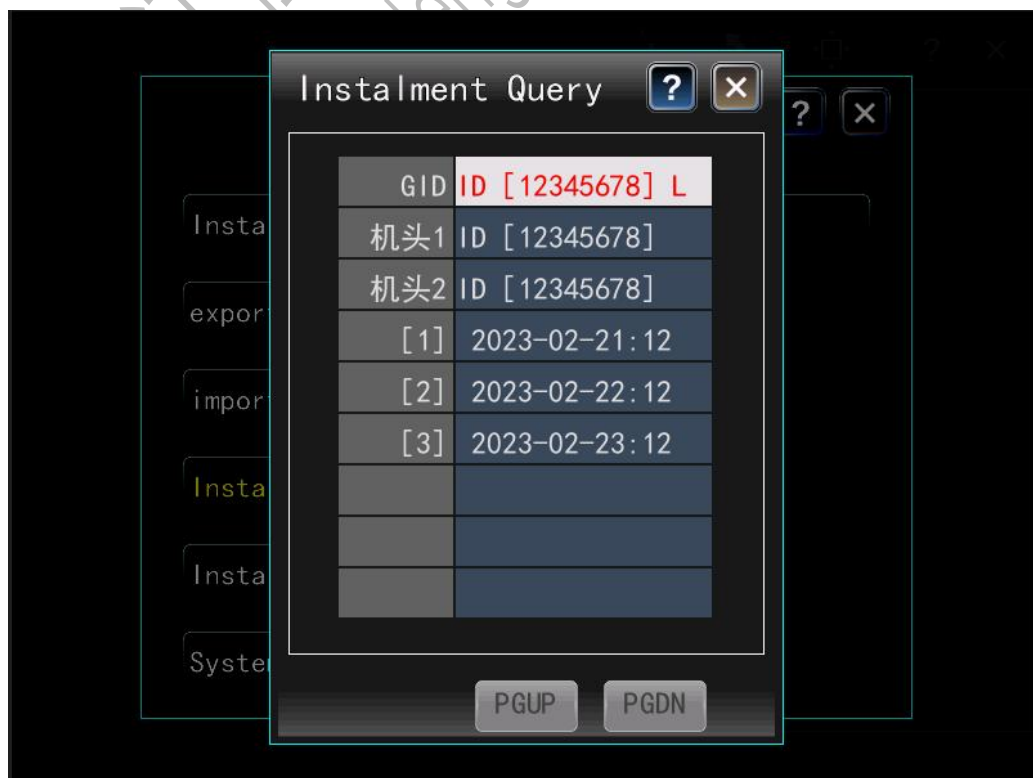
Click >>> Direction button to input the grouped unlock files to U disk, and the successful unlocking prompt will pop up after normal operation.

再次单击激活的成组解锁按钮功能恢复常规文件操作。

Click the activated grouped unlocking button for unlocking, and restore the normal file operation based on function.

## 11.4 分期付款查询

### Installment query



# 浙江恒强科技股份有限公司 Zhejiang Hengqiang Technology Co., Ltd.

## 全自动电脑横机控制系统操作说明-全触摸

### Operating Instructions of Automatic Control System of Computerized Flat Knitting Machine - Full Touch

---

查看系统加锁后的信息，主控 ID、机头绑定 ID、分期付款时间等。

View the information after system is locked, including master controller ID, carrier binding ID, installment payment time, etc.

#### 组号

Group number

生成成组加锁 ID 用的 8 位西文字符识别号，同一 ID 可以用一个解锁文件进行成批解锁，识别号后的‘L’标识为具备绑定加锁关系。

Generate the 8-digit Western character identification number for grouped locking IDs. The same ID can be unlocked in batches with an unlocking file, and the ‘L’ mark after the identification number has the binding and locking relationship.

#### 机头 1、机头 2...

Carrier 1, carrier 2...

机头小主板与主控板存在绑定加锁关系时，其两者 ID 识别号必须相同，否则报警且机头无法正常编织运行。

When there is binding and locking relationship between the small main board of the carrier and the master controller board, their ID identification numbers must be the same; otherwise, an alarm will be prompted and the carrier cannot knit normally.

#### 根据系统数自动增加机头 1、机头 1、机头 3...等绑定显示

The binding display of carrier 1, carrier 1, carrier 3, and the like will be automatically added according to the number of systems.

[1]、[2]、[3]...

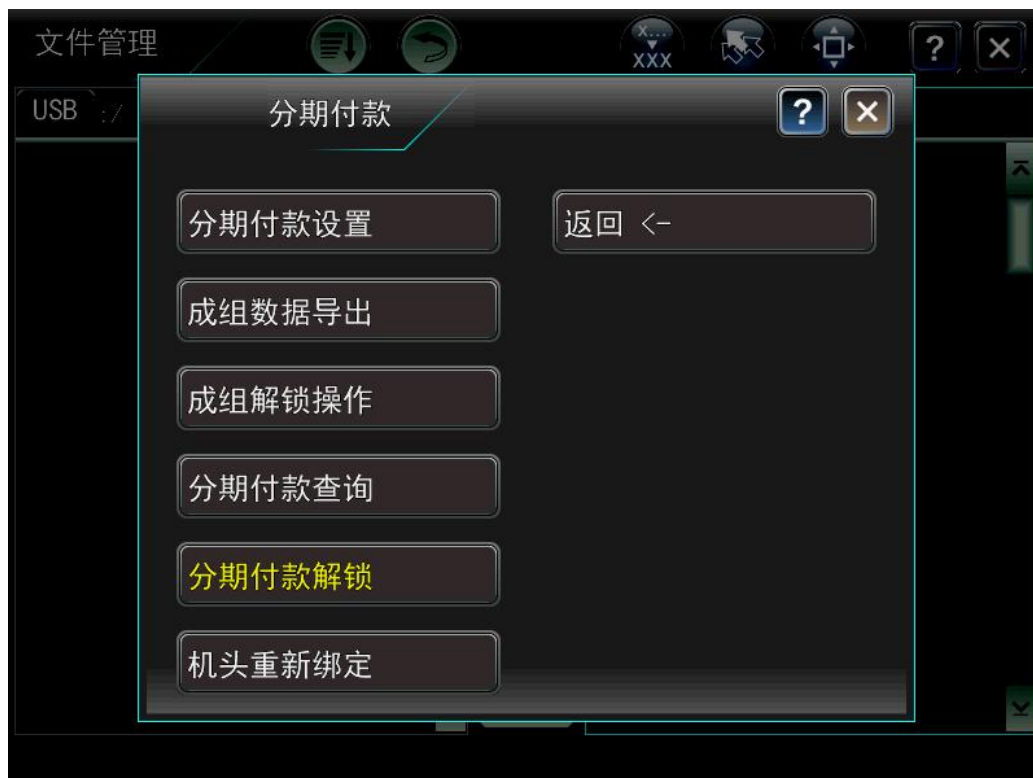
[1], [2], [3]...

分期付款信息提示，建议用户直接使用加锁 1 期，解锁文件生成时根据付款情况再加锁 1 期的这种简洁、可靠的方式。

Installment payment information prompt: it is recommended that the users directly use the simple and reliable way by locking one period, and then locking another period according to the payment when unlocking files are generated.

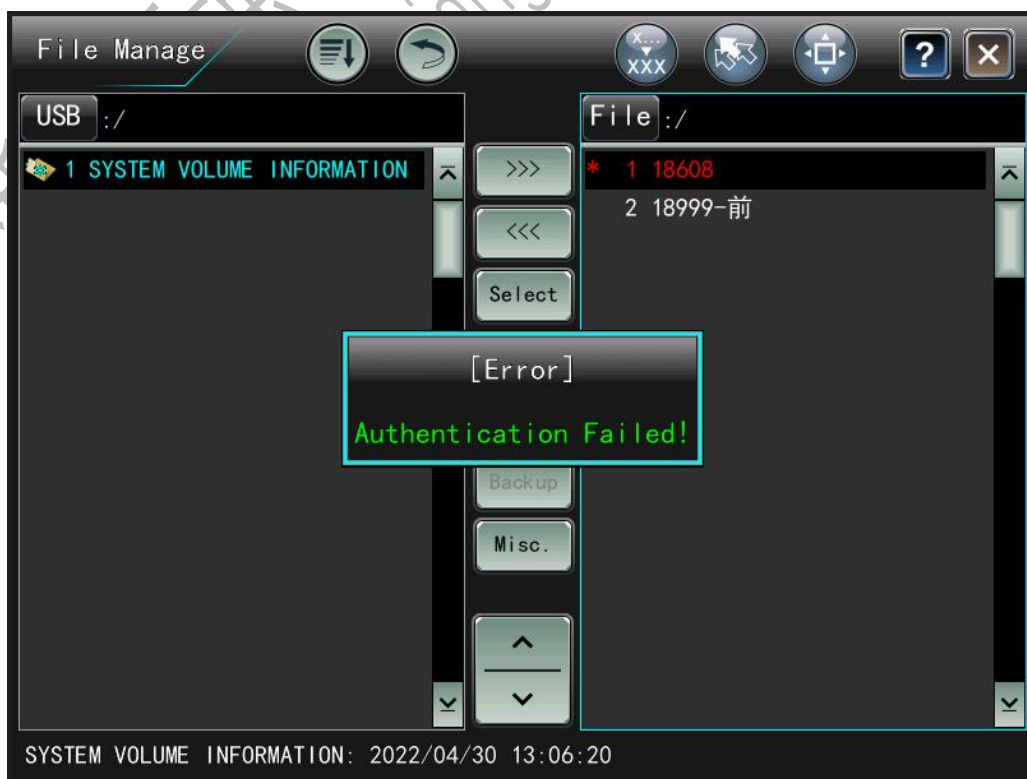
## 11.5 分期付款解锁

### Installment unlock









图示：口令验证失败!

Illustration: Password verification failed!

单击分期付款解锁按钮后弹出解锁口令验证，通过弹出的 12 组随机数据输入到恒强专用加锁、解锁客户端工具生成相应的 8 组解锁数据，输入验证正确后弹出‘解锁成功，请关机重启’，提示弹窗无法清除、退出等必须关机。

After clicking the installment payment unlocking button, the corresponding 8 groups of unlocking data will be generated by inputting the popped-up 12 groups of random data into Hengqiang special locking and unlocking client tool. After the input verification is correct, the prompt stating ‘Unlock successfully, please shut down and restart’ will pop up, which cannot be cleared and exited until shutdown.

解锁口令验证如果 3 次输入错误后弹出口令验证失败！并自动返回到文件管理窗口。

Unlock password verification: the popped-up password verification fails if incorrect passwords are input for 3 times! Then, the machine automatically returns to the file management window.



这种早期的 2812、E330、E341 主板上的解锁方式目前已不推荐在新的 A8 主板上使用，请在手机上通过恒强远望 APP 进行更安全、便捷的解锁操作。

It is not recommended to use this early unlocking method that was used on 2812, E330 and E341 main boards on the current new A8 main board. Please perform unlocking on the Hengqiang Yuanwang app on the mobile phone, which is more safely and conveniently.

## 11.6 机头重新绑定

### System relock(Carrier rebinding)

带分期付款绑定后的硬件其中之一因故障原因更换后需重新建立绑定关系，单击机头重新绑定可以将机头小主板与主控重新绑定加锁。

If any one of hardware after installment payment binding is replaced due to malfunction, it is necessary to re-establish the binding relationship. Click the carrier to re-bind the carrier's small main board with the master controller and lock it.

只有具备相同 ID 识别号的才能进行重新绑定。

Only those with the same ID identification number can be rebound.



备注:

Note:

1. 若更换机头小主板后未与主控板重新绑定，运行时将弹出‘机头未绑定’报警提示，无法正常运行编织。

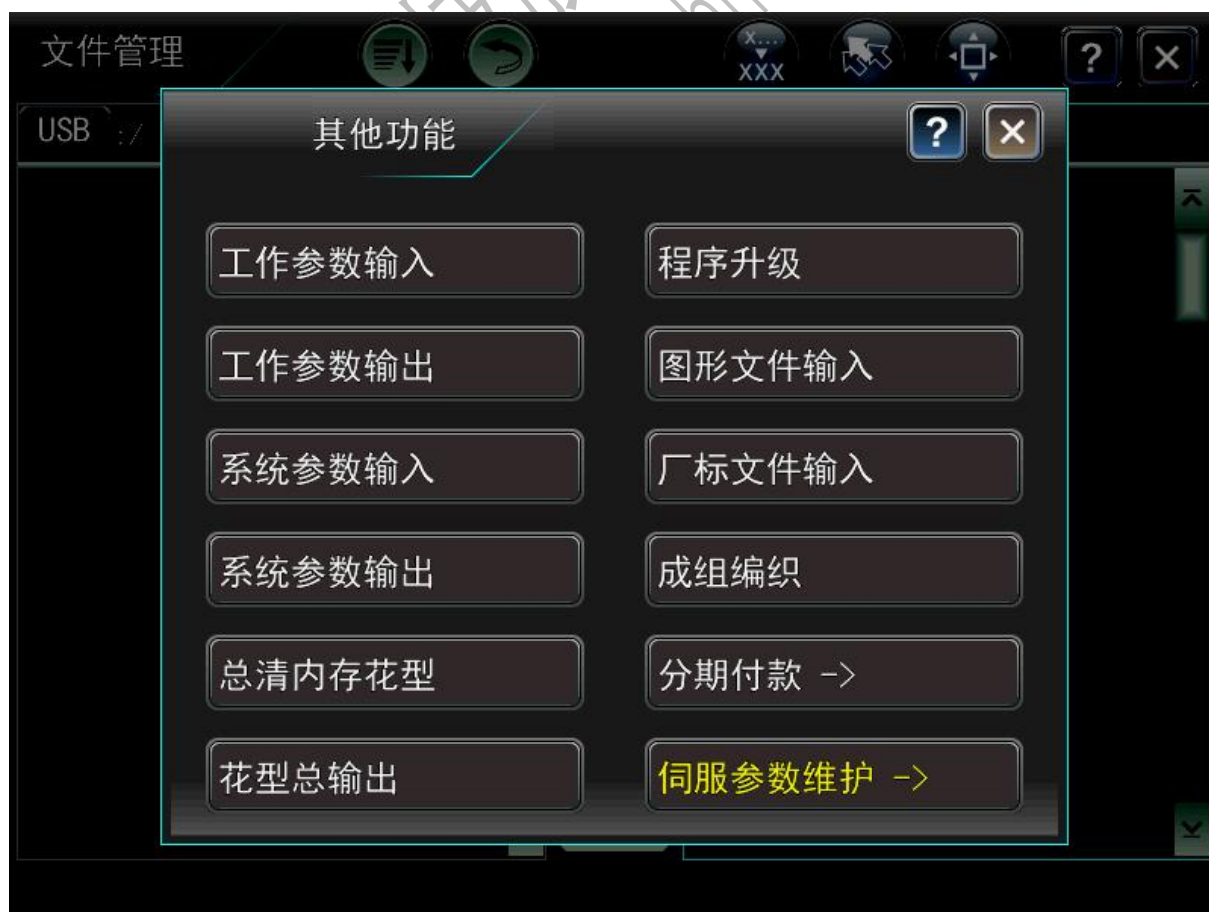
If the replaced small main board of the carrier is not re-bound with the master controller board, an alarm prompt stating “Unbound carrier” will pop up during operation, and knitting cannot run normally.

2. 若更换主控板未输入原加锁文件，形成机头小主板有绑定锁主控无锁，机器运行过程中将弹出报警提示，当运行持续超过 30 分钟系统将强制锁定而无法运行。

If the original locking file is not input after replacing the master controller board, an alarm will pop up during operation because the carrier’s small main board is bound but the master controller is not locked. When the operation lasts for more than 30 minutes, the system will be forced to lock and cannot run.

## 12. 伺服参数维护

### Servo parameters









请输入密码：8888

Please enter the password: 8888

## 1. 伺服参数导出

### Servo Backup(Servo parameter export)

主伺服、摇床伺服参数导出至 U 盘中，目前恒强系统支持有之山、日鼎、恒强配套伺服控制器输出时有相应的区别代号。

Export the servo parameters of the main servo and rock servo into the U disk. Currently, the Hengqiang system supports Zhishan, Riding, and Hengqiang supporting serve control for outputting with corresponding codes.



## 2. 伺服参数导入

### Servo import

将备份在 U 盘中的伺服参数导入至现有的伺服驱动控制器中，导入后需断电重启。

Import the servo parameter backed up in the U disk to the existing servo drive control. After import, shutdown and restart up are required.





### 3. 花型管理

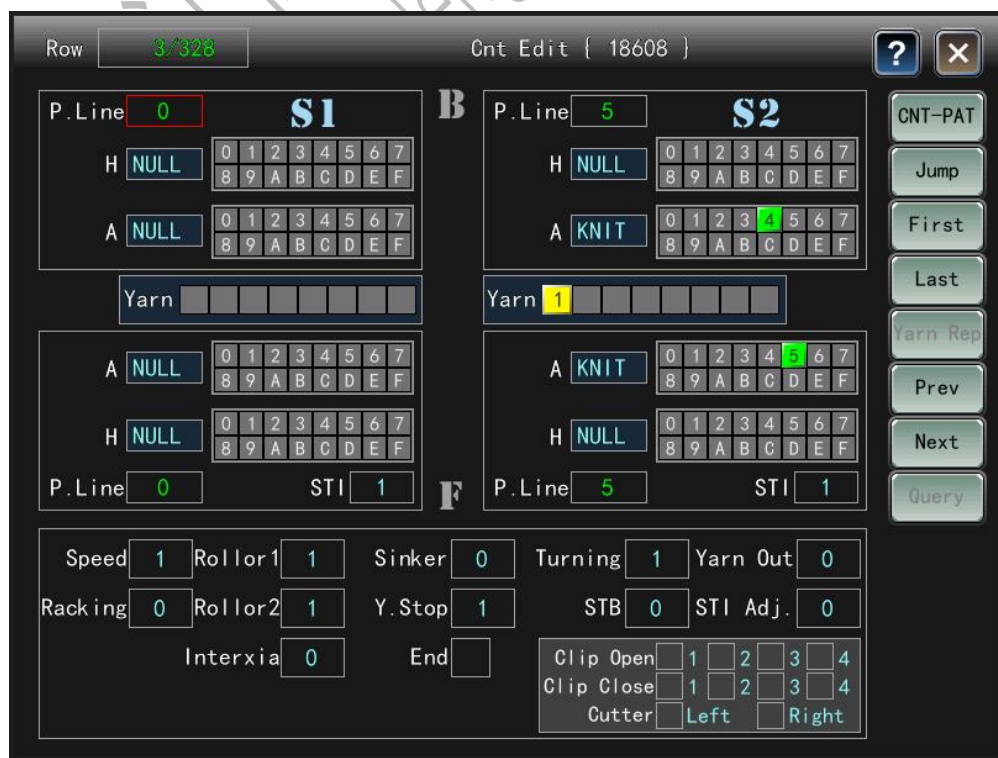
#### Pattern manage





### 3.1 CNT 文件编辑

#### CNT edit

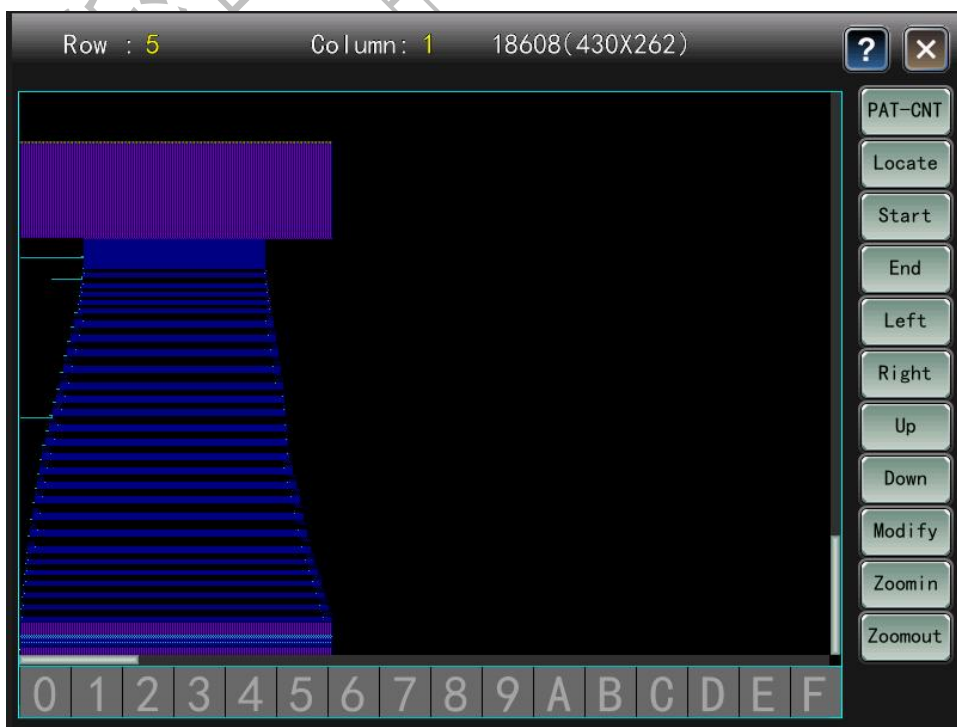


● 右侧功能键说明

Right function key description

CNT-PAT: 切换至 PAT 文件编辑窗口。

CNT-PAT: Switch to the PAT file editing window.



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全自动电脑横机控制系统操作说明-全触摸

Operating Instructions of Automatic Control System of Computerized Flat Knitting Machine - Full Touch

跳行（可直接单击行号）：选择跳转行。

Row skipping (directly click the row number): Select the row to be skipped.



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首行：跳转至 CNT 第一行。

First row: Skip to first row of CNT.

末行：跳转至 CNT 最后一行。

Last row: Skip to last row of CNT.

上行：上一行。

Previous row: Previous row.

下行：下一行。

Next row: Next row.

## 1. 动作指令选择

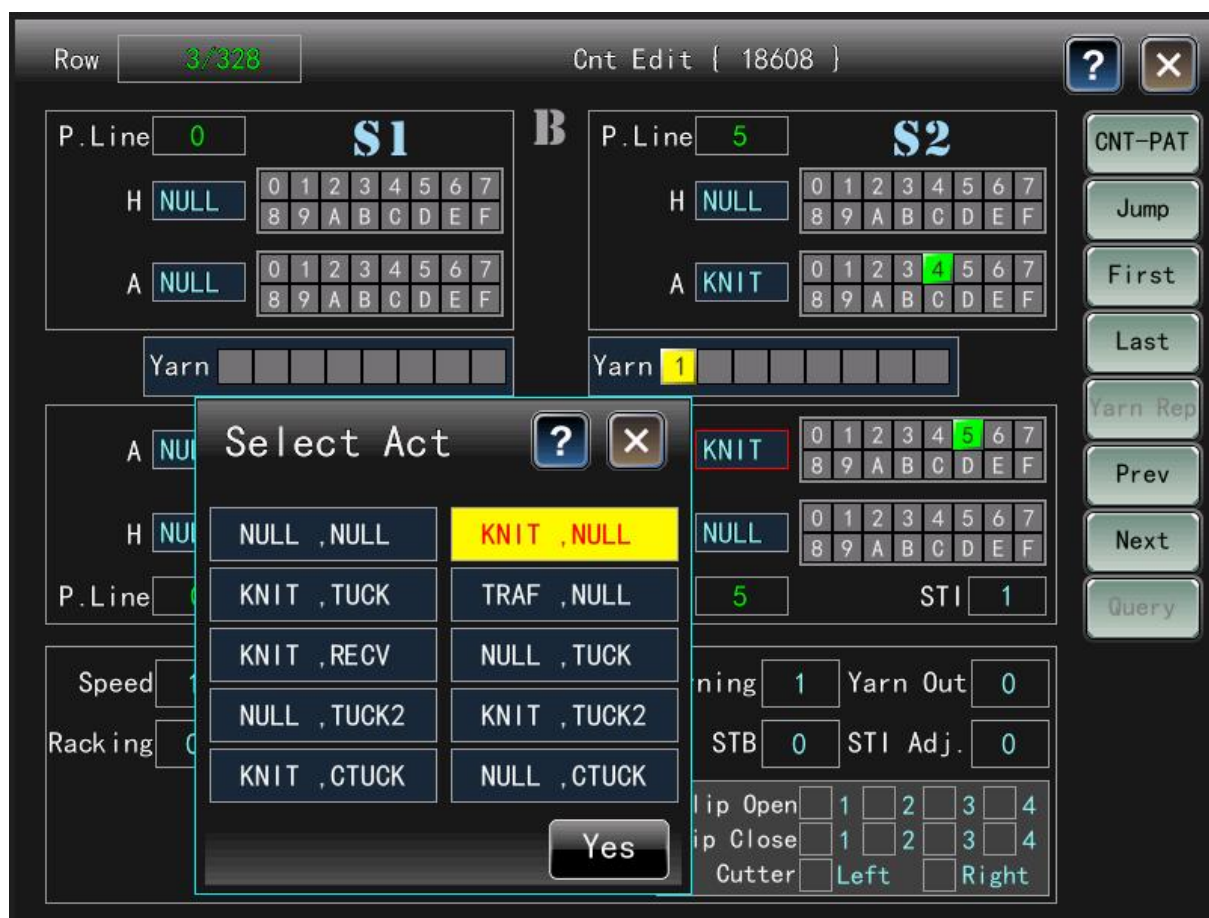
### Select Act(Action instruction selection)

单击 A、H 位显示框弹出动作指令选择窗口进行修改。

Click Positions A and H display box to pop up the action instruction selection window for modification.







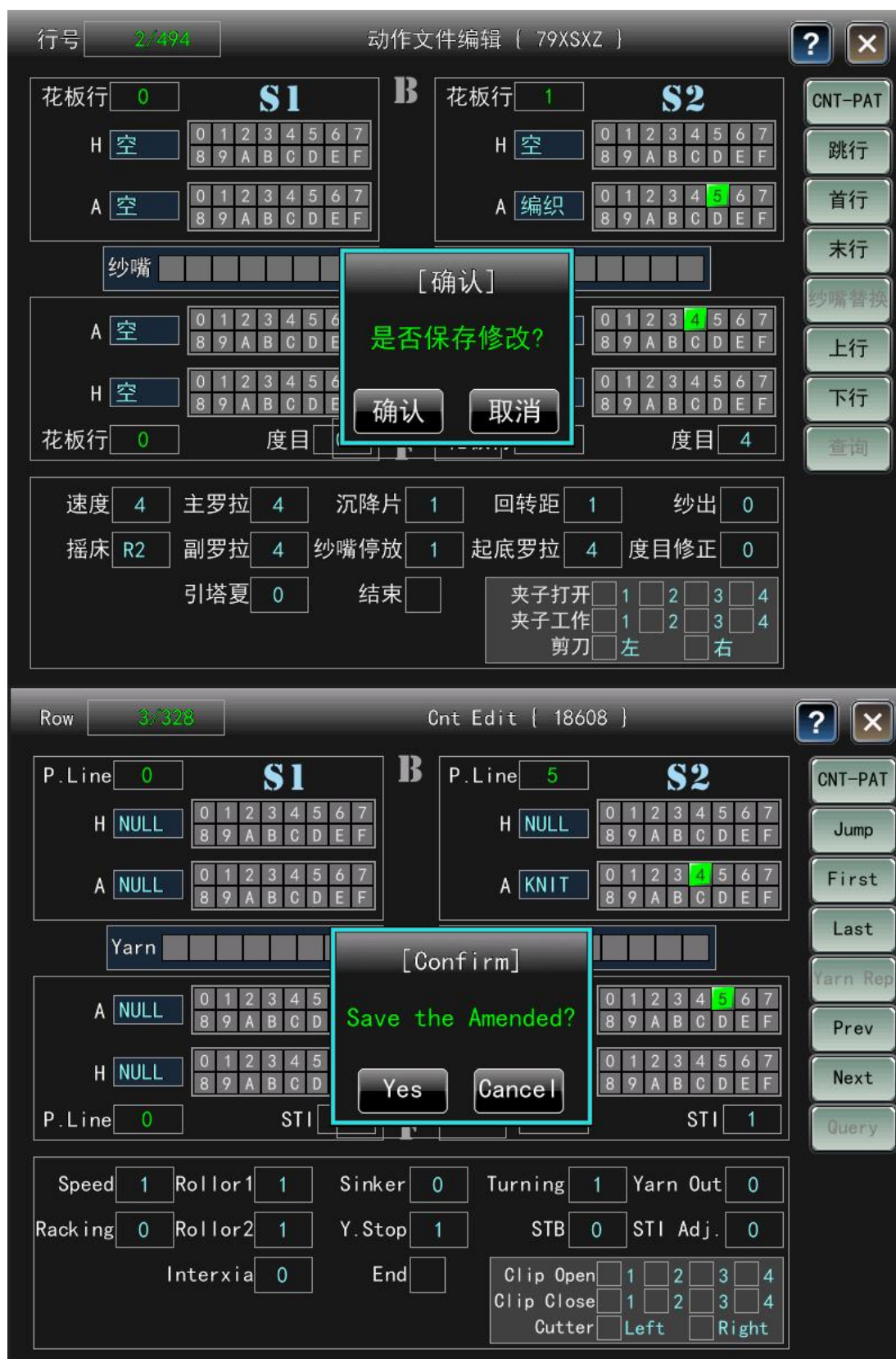
动作指令选择是由恒强制版编译提供，选择指令以 A、H 组合提供，一旦修改后退出后系统提示**是否保存修改？**选择保存则修改了花型 CNT 控制指令，更改动作文件后请重新选择花型以便更新内存中的动作文件。

The action instruction selection is provided by the Hengqiang program, and selection instructions are provided in combination of Positions A and H. Once modified, the system will pop up a prompt stating **Whether to save modification?** after exit. Once you select “Save”, it indicates that the pattern CNT control instruction is modified. After modifying the action file, please re-select the pattern to update the action file in memory.

选择取消后不会对原动作文件所进行的修改并直接返回到花型管理窗口。

When you select “Cancel”, the original action file will not be modified, and the system will directly return to the pattern Management window.





## 2. 色码编辑

### Color Edit

A、H 选针色码修改。

Needle color code modification in Positions A and H.





选择相应的 A、H 位色码显示区，弹出色码编辑窗口单击选择相应色码进行修改。

Select the corresponding Position A and H color code display area to pop up the color code editing window. Click and select the corresponding color code for modification.

修改后保存、取消等见 3.1.1。

See 3.1.1 for how to save and cancel after modification.

恒强制版色码现有支持 16 个，0-9；A-F。

Hengqiang program color code currently supports 16, 0-9; A-F.

### 3. 纱嘴编辑

#### Yarn Edit

编织系统纱嘴号修改。

Modify the yarn feeder number in the knitting system.

选择系统纱嘴显示区，弹出纱嘴编辑窗口，单击数字号选择所需修改的纱嘴号，如有 1 把以上纱嘴系统将自动从第 1 显示位置进行按纱嘴号顺序排序。

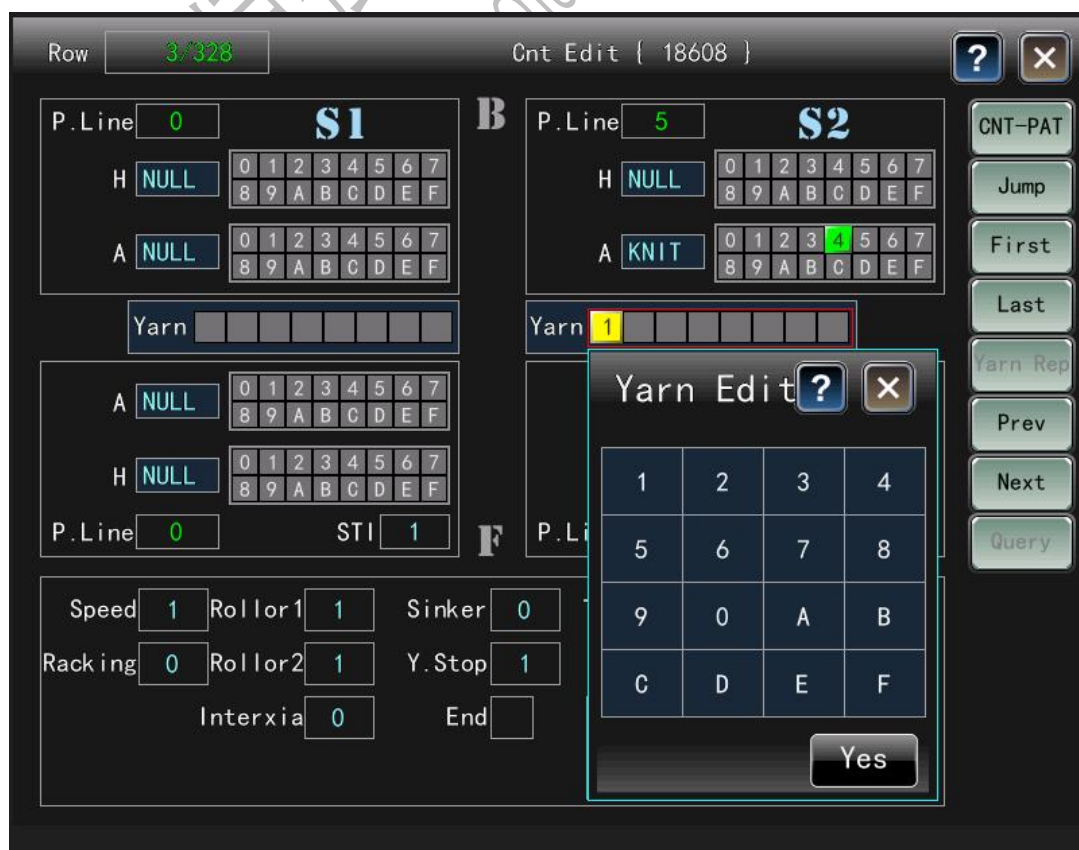
Select the yarn feeder display area of the system to pop up the yarn feeder editing window. Click the digital number to select the yarn feeder number to be modified. If there is more than one yarn feeder, the system will automatically sort according to the yarn feeder number sequence from the first display position.

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## 4. 摇床指令选择

### Select Rack(Rock instruction selection)

摇床指令修改，指令由方向 L、R 以及位置 \*、+、- 等。

Modify the rock instruction, including directions L, R and positions \*, +, -, etc.







单击摇床提示框弹出摇床指令选择窗口，高亮显示的为当前行的摇床指令方向 (L、R)、针数位置。  
Click the rock prompt box to pop up the rock instruction selection window. The rock instruction direction (L, R), number of needles, and position of the current row will be highlighted.

建议修改摇床指令还是通过制版更安全可靠。

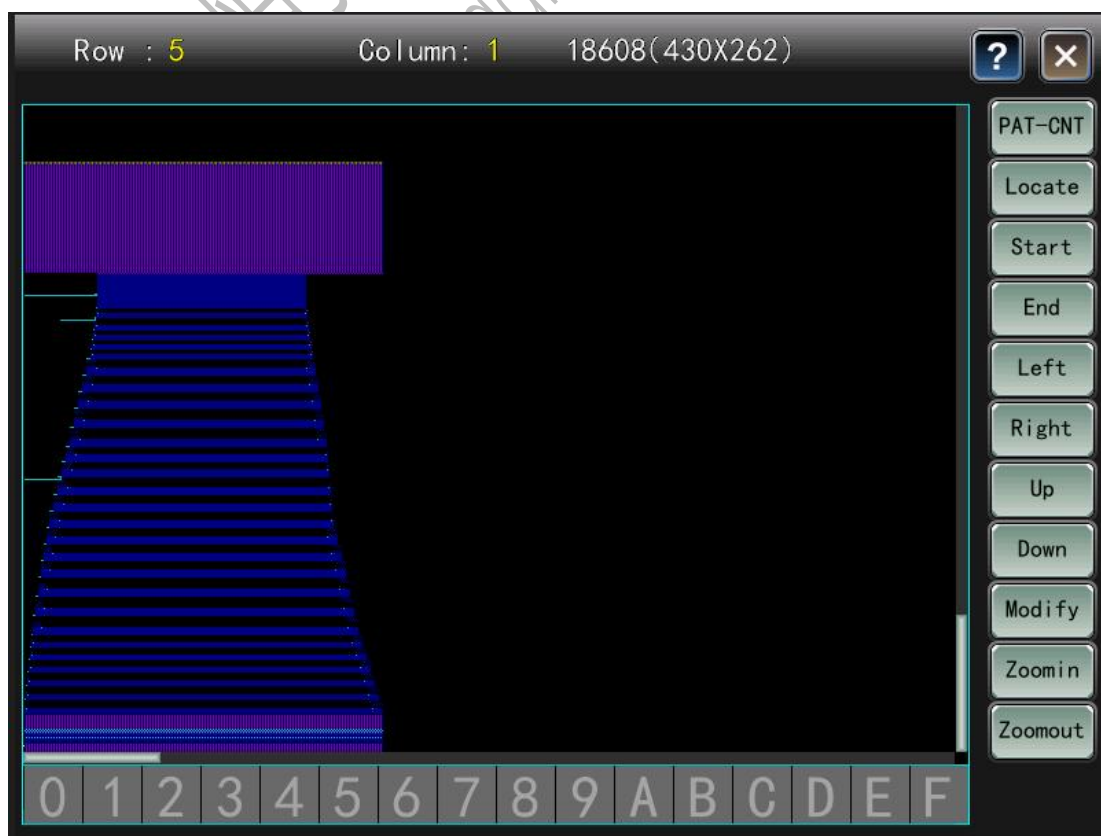
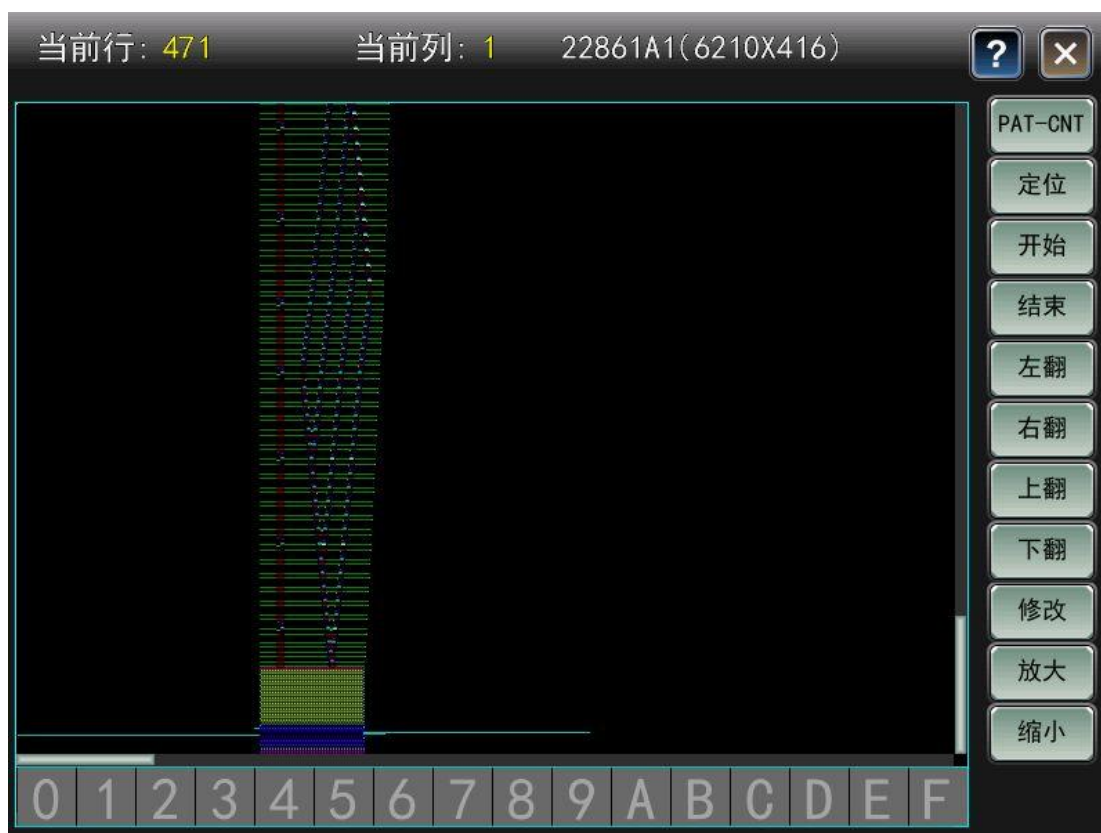
It is recommended to modify the rock instruction through program, which is safer and more reliable.

## 3.2 PAT 文件编辑

### PAT Edit

查看、编辑当前编织花样的选针色码指令。

View and edit the needle selection color code instruction of the current knitting pattern.



说明:

Description:

1. 选针指令，从针床上排列的针当中选出需要使用的针。

Needle selection instruction: select the needles to be used from the needles arranged on the needle bed.

2. PAT 文件编辑窗口竖直方向为‘花版行’，水平方向为‘针数’。

In the PAT file editing window, the vertical direction displays the “pattern row”, and the horizontal direction displays the “number of needles”.

3. 当原图执行自动出带处理时，第一作图区的颜色会转换成花样资料，花样以 0-9、A-F 共 16 个色码表示，称之为花样代码。

When the original image is automatically output, the color of the first drawing area will be converted into pattern data, and the pattern is represented by 16 color codes including 0-9 and A-F, which are called pattern codes.

- **右侧功能键**

- Right function key**

- PAT-CNT  
PAT-CNT

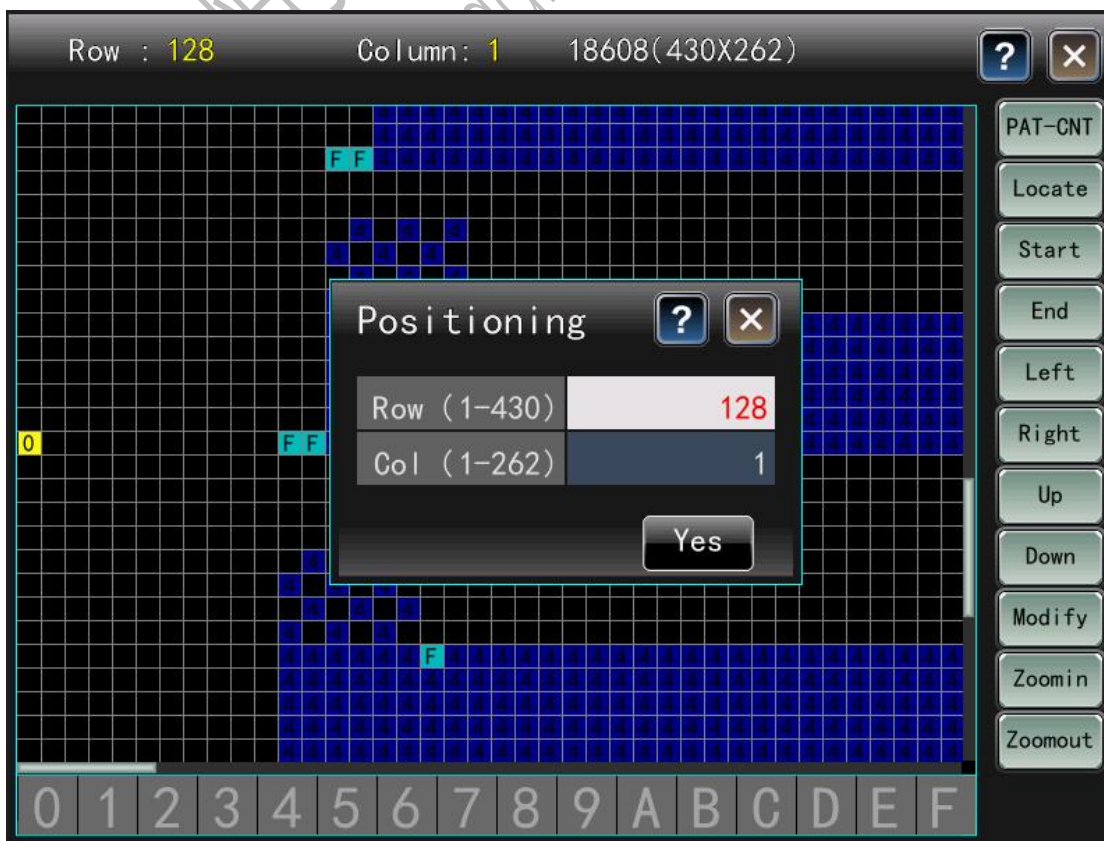
以当前光标所在的 PAT 花版行跳转至 CNT 文件编辑窗口中对应的动作行。

Skip to the corresponding action row in the CNT file editing window from the PAT row where the current cursor is located.

- 定位  
Locate

跳转至指定花版行、列（针）。

Skip to designated pattern row, and column (needle).



- 开始  
Start

至花板第一行。  
First row of the pattern.

- 结束  
End

至花板结束行。  
End row of the pattern.

- 左翻  
Left

向左滚屏。  
Scroll to the left side of the screen.

- 右翻  
Right

向右滚屏。  
Scroll to the right side of the screen.

- 上翻  
Up

向上翻。  
Scroll to the up side of the screen.

- 下翻  
Down

向下翻。  
Scroll to the down side of the screen.

- 修改  
Modify

修改选针色码，一般先定位好所需修改的色码后单击修改按钮，PAT 图自动放到最大显示倍数同时下栏的色码修改栏自动增量激活、修改按钮高亮激活状态。

Modify the color code of needle selection. Generally, locate the color code to be modified and then click the Modify button. The PAT graph will be automatically scaled up the maximum display multiple, and the lower color code modification column will be automatically activated incrementally, and the Modify button will be highlighted and in the activation status.





- 放大  
Zoom in

放大当前显示界面，单击一次放大一倍直至最大。

Zoom in on the current display screen, and click once to zoom out once until the maximum.

- 缩小  
Zoom out

缩小当前显示界面，单击一次缩小一倍直至最小。

Zoom out on the current display screen, and click once to zoom out once until the minimum.

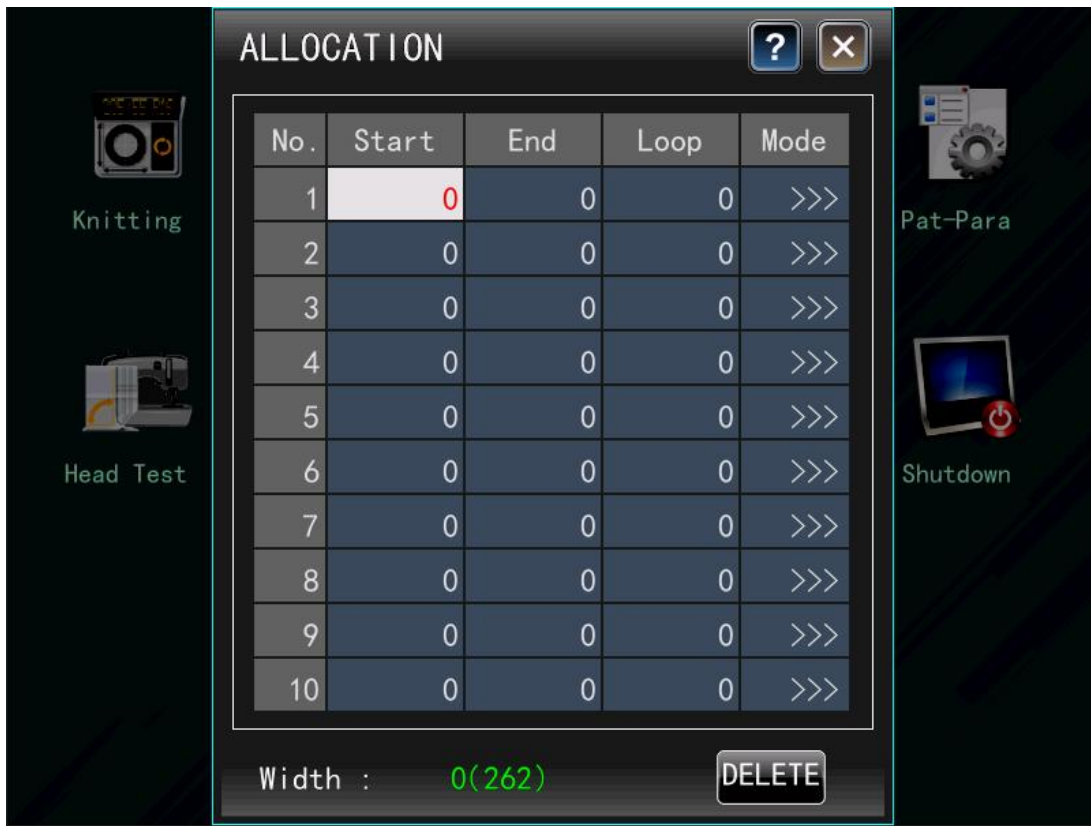
### 3.3 花型裁剪

#### ALLOCATION(Pattern cutting)

选择花型的部分选针区域进行阵列复制、组合等组成新的 PAT 选针图。

Select part of the needle selection area in the pattern for array copying and combination to form new PAT needle selection diagram.





- 开始:  
Start:

从 PAT 图中选择复制的开始针位。  
Select the start point to be copied from the PAT diagram.

- 结束:  
End:

从 PAT 图中选择复制结束的针位。  
Select the end point to be copied from the PAT diagram.

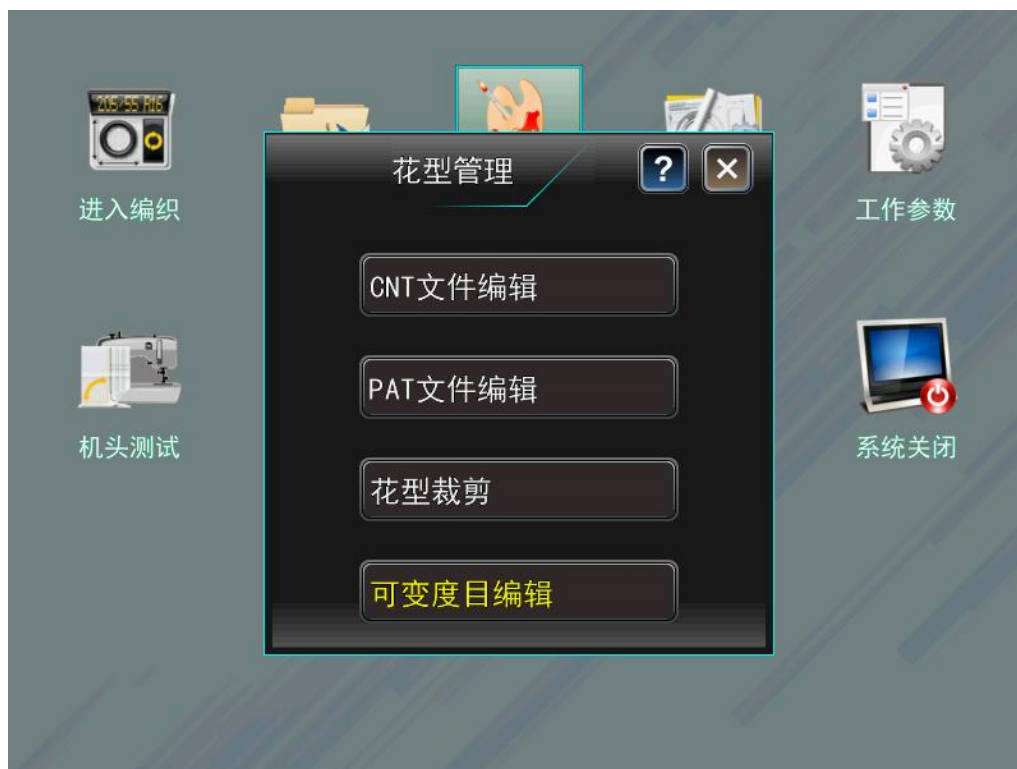
- 循环:  
Loop:

将开始 -> 结束所选择的复制区域进行阵列复制，复制方向根据模式所选。  
Copy the array for the copying area selected from the Start -> End point, and the copying direction is based on the mode.

序号 (1-10) : 可裁剪同一花型不同位置进行编织操作。  
Serial number (1-10): Different positions of the same pattern can be cut for knitting.

### 3.4 可变度目编辑

#### Variable stitch edit



## 4. 系统参数

### Sys-para





## 4.1 系统基本参数

### system parameters



图示：系统基本参数 (1/2)

Illustration: Basic system parameters (1/2)



图示：系统基本参数 (2/2)

Illustration: Basic system parameters (2/2)

## 1. 针零位

### Needle zero (position)

以机头山板或护山三角其中之一的左侧边线参考基准对齐针板左侧第 1 针槽中心线，设置与针零位传感器间的针距离参数。

Set the needle distance parameter between the needle zero position sensors by aligning the central line of the first needle slot on the needle plate, taking the left side line of either the carrier's knitting plate or the cam as the benchmark.

针零位是系统极为重要的参数之一，其主要用于选针、纱嘴停放、行程控制、可变度目、度目分步等场景，务必精确校准。

As one of the most important parameters of the system, needle zero position is mainly used in needle selection, yarn feeder stopping, stroke control, variable stitch, stitch division and other scenes, which must be calibrated accurately.

针距作为计量单位精度过低问题，系统控制针对不同机号采用分段式细分针距的控制方式提高选针等精度，前、后针床根据其相对位置采用分别选针起始刀控制。

The needle distance solves the problem when the measurement unit accuracy is too low. According to different machine numbers, the system control adopts segmented subdivision needle distance control mode to improve the accuracy of needle selection. The front and back needle beds are controlled by needle selection starting blade respectively according to their relative positions.

错误的针零位参数将造成错误的选针及工作范围，引起织物废片、撞针等严重问题。

Incorrect needle zero position parameters will lead to incorrect needle selection and working range, as well as serious problems such as waste fabric pieces and needle shock.



#### 正确的选针要素

Correct needle selection elements

#### 1. 选针器编号 (1、2、3、4...)

Needle selector number (1, 2, 3, 4...)

根据花型 CNT 控制指令查看相应的选针器执行编号是否正确。

Check whether the corresponding needle selector execution number is correct according to the pattern CNT control instruction.

#### 2. 选针刀头

Needle selection blade head

对应选针器的工作刀头是否正确，例如根据花型在针板上是 4 号脚选针片实际是否与之匹配。

Check whether the working blade head of the needle selector is correct, for example, whether No.4 needle selection piece on the needle plate actually matches with the blade head based on pattern.

#### 3. 选针提前量

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Needle selection advance amount

根据选针器刀片个数查看选针提前量，可以通过移出相应选针器查看选针工作刀头工作时并标记对应针板上的实际位置查看。

Check the needle selection advance amount based on the number of needle selector blades, which can be checked by moving out the corresponding needle selector, viewing working blade head for needle selection, and marking the actual position of the corresponding needle plate.

左行、右行均需验证。

Both moving to the left and right must be verified.

- 控制系统有针对高速编织时，选针提前量的动态微调处理，提高 E14 及以上机型高速编织的选针实际精度。

When the control system targets at the high-speed knitting, the needle selection advance amount is dynamically fine tuned to improve the actual accuracy of needle selection for E14 and above models.

选针器刀片个数 Number of needle selector blades	提前量 Advance amount
3	2
5	3
6	4
8	6
10	8

机号 (E) Machine number (E)	针距 (mm) Needle distance (mm)
	横机针距 $t = 25.4 / \text{机号 } E$ Flat knitting machine Needle distance $t = 25.4 / \text{Machine number } E$ $1" = 25.4\text{mm}$
E2.5	10.16
E3	8.466
E5	5.08
E7	3.629
E12	2.117
E14	1.814
E16	1.588
E18	1.411

## ● 设置方法

### Setting method

机器复位完成后手推移动机头或按左行、右行按钮移动至针床左侧第1针附近，选择机器配置文件中<机头宽度>所定义的左侧基准（山板、护山三角）对准针床的第一针处，按定位按钮弹出参数设置窗口后单击确认写入当前显示针数值。

After the machine reset is completed, push and move the carrier by hand or press the Move to the Left and Move to the Right button to move to the first needle on the left side of the needle bed. Select the left reference (knitting plate and cam) defined by <carrier width> in the machine configuration file to align with the first needle on the needle bed. Press the positioning button to pop up the parameter setting confirmation window and click "OK" to write the current displayed needle value.







### ● 左行、右行按钮激活方法

#### Activation methods for Move to the Left and Move to the Right buttons

按住左行、右行任意一个灰色状态按钮不放，自动弹出 3 秒倒计时完成后弹出‘是否确认要移动机头？’提示，单机确认后左行、右行按钮均高亮激活可使用。

Hold down either the Move to the Left and Move to the Right button in gray status, and a 3-second countdown diagram will automatically pop up. After the countdown is completed, a warning will pop up stating “Are you sure you want to move the carrier?”. After clicking “OK”, the Move to the Left and Move to the Right buttons are highlighted and can be activated.



## 2. 左系统纱嘴右行零位 Yarn Right Zero

设置左系统纱嘴右行零位，以针零位作基准，左系统右行时纱嘴进编织区携带的位置控制参数。  
Set the left system yarn feeder to move to the right to the zero position using the needle zero position as the benchmark, and the control parameter carried by the position when the left system moves to the right and the yarn feeder enters the knitting zone.





设置方法  
Setting method

1. 用手移动任意一纱嘴（一般选1号）的出线口的中心对准前针板左侧第1针中心处。  
Move the center of the outlet of any yarn feeder (generally No.1) by hand to align with the center of the first needle on the left side of the front needle plate.
2. 手推移动机头至左系统在1号纱嘴梭箱（乌斯座）附近。  
Move the carrier by hand to the left system near the No.1 yarn feeder base.
3. 单击左系统纱嘴右行零位参数区弹出纱嘴编辑用于选择所需的参考纱嘴。  
Click the zero position parameter zone for moving the left system yarn feeder to the right to pop up the yarn feeder editing window, which is used to select the required reference yarn feeder.
4. 单击1号纱嘴下落至携带位置。  
Click No. 1 yarn feeder and drop to the carrying position.
5. 继续手推移动将换梭芯子的右侧与梭箱（乌斯座）右侧羊角接触后停止，确认梭箱没有偏移位置。  
Continue to push and move by hand, and stop until the right side of the shuttle changing core is in

contact with the right corner of the yarn feeder base, and confirm that the yarn feeder base has no offset position.

6. 单击 X 退出纱嘴编辑临时选择界面。

Click X to exit the temporary selection interface during yarn feeder editing.

7. 单击定位写入当前位置参数完成设置。

Click Position to write the current position parameter and complete the setting.

### 3. 左系统纱嘴左行零位

#### Yarn Left Zero

设置左系统纱嘴左行零位，以针零位作基准，左系统左行时纱嘴进编织区携带的位置控制参数。

Set the left system yarn feeder to move to the left to the zero position using the needle zero position as the benchmark, and the control parameter carried by the position when the left system moves to the left and the yarn feeder enters the knitting zone.

设置步骤基本同 2，只是换梭芯子左侧与梭箱左羊角接触。

The setting steps are basically the same as step 2, and the difference is that the left side of the shuttle changing core is in contact with the left corner of the yarn feeder base.

- 系统-2、系统-3...的左、右行零位按配置文件中的<系统中心距> = xxx 参数自动计算位置。

The zero positions for system-2, system-3... to move to the left/right are automatically calculated based on the <system center distance> = xxx parameter in the configuration file.

- 由于纱嘴控制装置安装于机头后存在一定的位置误差，故目前根据生产厂家开放了按系统定义的左行、右行零位独立设置。

Due to a certain position error after the yarn feeder control device is installed in the carrier, the manufacturer has opened the independent setting of moving to the left/right to the zero positions according to the system definition.

### 4. 机头左限位

#### System L Bound(Left limit of carrier)

设定机头左行时与左限位传感器位置的安全针数。

Set the number of safe needles at the left limit sensor position when the carrier moves to the left.

- **设置方法**

#### Setting method

手移机头或激活左行按钮往左移动，使机头上感应金属片接近左限位感应器，并保持一定的安全针数距离（左限位传感器指示灯灭，输入输出测试界面中左限位显示‘关闭’），停止移动机头，单击定位按钮将当前值更新写入，此值必定为正数请务必设置正确。

Move the carrier by hand or activate the Move to the Left button to move the carrier to the left until the sensing metal piece on the carrier is close to the left limit sensor, and keep a certain safe needle count distance (the left limit sensor indicator goes out, and the left limit displays “OFF” in the input and output test



interface). Stop moving the carrier, and click the positioning button to update and write the current value. This value must be positive and must be set correctly.

备注:

Note:

因主马达伺服在机头移出使能打开时，在换向过程中存在惯性距离，此设置点与左限位传感器的距离需大于换向惯性距离。

Due to the inertial distance in the direction conversion process of the main motor servo when “Enable carrier out” is enabled, the distance between this set point and the left limit sensor needs to be greater than the direction conversion inertial distance.

机头左限位传感器作用于保护机头在编织过程中由于异常超程后的安全保护触发机制，超程发生时弹出报警提示，机头左超程、机头将停止运行。

The left limit sensor of the carrier is to protect the carrier. Due to the safety protection triggering mechanism after abnormal excess of stroke, an alarm will be prompted in the case of excess of stroke. When the carrier exceeds the left limit, it will stop running during knitting.

## 5. 机头右限位

### System R Bound(Right limit of carrier)

设置机头往右运行时与右限位传感器保持安全的针数。

Set the number of safe needles at the right limit sensor position when the carrier moves to the right.

机头右限位传感器作用于保护机头在编织过程中由于异常超程后的安全保护触发机制，超程发生时弹出报警提示，机头右超程、机头将停止运行。

The right limit sensor of the carrier is to protect the carrier. Due to the safety protection triggering mechanism after abnormal excess of stroke, an alarm will be prompted in the case of excess of stroke. When the carrier exceeds the right limit, it will stop running during knitting.

#### ● 设置方法

##### Setting method

手移机头或激活右行键使往右移动，机头限位铁片接近右限位感应探头，并保持一定的针数距离（探头指示灯灭，信号检测状态“0”），停止移动机头，将光标移至指定位置，按 F1 键或单击【针位置】弹出参数设置确认选项，确认后即可写入当前显示针数值。

Move the carrier by hand or activate the Move to Right button to move the carrier to the right. When the carrier limit iron piece approaches to the right limit induction probe, and keeps a certain needle count distance (probe indicator light goes out, and the signal detection status is “0”), stop moving the carrier, and move the cursor to the specified position. Press F1 key or click [Needle position] to pop up the parameter setting confirmation option. Write the current displayed needle count value after confirmation.

备注:

Note:

机头移出使能 -> 打开

Enable carrier out -> Enabled.

机头回转点按机头左限位、机头右限位设定参数执行。

Carrier return point: to be executed based on the setting parameters of the carrier's left limit and right limit.

机头移出使能-打开，用于纱嘴停放与机头速度对照表设置，速度从 1-100 细分段间修正值。

Enable carrier out-Enabled: used to set the comparison table window of skip yarn feeder stopping and carrier speed. The speed is corrected in the 1-100 segment divisions.

因主马达伺服在换向过程中存在惯性距离，此设置点与左、右限位传感器的距离需大于换向惯性距离，防止设置过小时因惯性距离触碰限位传感器后报警。

Due to the inertial distance in the direction conversion process of the main motor servo, the distance between this set point and the left/right limit sensor needs to be greater than the direction conversion inertial distance; if the distance is set too small, an alarm will pop up as the limit sensor is touched due to inertial distance.

## 6. 横机壹英寸针数

### Machine Type(One-inch needles of the flat knitting machine)

根据实际针板针槽间距，设置横机一英寸针数的数值。

Set the one-inch needles of the flat knitting machine based on the actual spacing between the needle plate and the needle slot.

## 7. 横机总针数

### All Needle(Total needles of the flat knitting machine)

横机前、后任意 1 块针床的总针数，前、后床针床总针数相同，以前床方便计数，机号、幅宽等信息可以查看机器铭牌、新机调试可自行计数统计、写入。

The total number of needles of any one piece of needle bed at the front and rear of the flat knitting machine is the same. The number of the front bed is used to facilitate counting. For the machine number and width, check the machine nameplate. During new machine debugging, conduct automatic counting, statistics and writing.

可以通过针床上排列的多段式提花针脚

The multi-segment jacquard needle pins arranged on the needle bed can be used.

计算方法：

Calculation method:

横机壹英寸针数 (机号 E) \* 针床有效幅宽。

Flat knitting machine one-inch needles (Machine number E) \* Valid width on the needle bed.

示例：

Example:

机号 E = 12; 有效幅宽 = 52 英寸。

Machine number E = 12; valid width = 52 inch.

横机总针数 = 624(12\*52) (针)

Total needles of the flat knitting machine = 624 (12\*52) (Needles)

## 8. 同步带齿距校正

### Dentation Revise(Synchronous belt pitch correction)

设定机头编织时的同步带齿距（单块针板首、尾针间的脉冲差值），同步带齿距最终是单位针的脉冲数值作为针位置的计量单位。

Set the synchronous belt pitch (the pulse difference between the first and last needle on a single needle plate) during carrier knitting. For the synchronous belt pitch, the pulse value of the unit needle serves as the measurement unit of needle position.





● **设置方法:**

**Setting method:**

单击数值区，弹出同步带齿距矫正窗口。手动移动或者点击界面按键，左、右移动机头，观察界面上 CODER 编码器数值的变化情况。

Click the value zone to pop up the synchronous belt pitch correction window. Manually move or click the interface button to move the carrier to the left and right, and observe the change of CODER encoder value on the interface.

左移机头至针床左侧第 1 针槽中心线，将机头左外侧边界对准针床第 1 针，单击设置按钮输入左脉冲数值。

Move the carrier to the left until the center line of the first needle slot on the left of the needle bed, and align the left outer boundary of the carrier to the first needle on the needle bed; click Set button and enter the left pulse value.

右移机头至针床右侧，将机头左外侧对准针床最后一针，点击“左”数值区或者按数字键“2”，输入右脉冲数值。

Move the carrier to the right until the right side on the needle bed, and align the left outer side of the carrier to the last needle on the needle bed. Click “Left” value zone or press the numeric key “2” to enter the right pulse value.

系统会直接计算出左、右脉冲差值（同步带齿距=右-左），击“同步带齿距”数值区或者按数字键“2”，输入脉冲差值。

The system will directly calculate the difference between the left and right pulses (synchronous belt pitch = right - left). Click “synchronous belt pitch” value zone or press the numeric key “2” to enter the difference of pulse.

单击 ENRER 或按 ENTER 键保存即可。

Click or press the ENTER to save

备注：

Note:

机头从左往右移动或从右往左移动时，编码器数值不能有突变（同向移动中某一位置突然变零，然后再递增或递减），如发现此种情况请检查主马达编码器或主马达伺服分频设置不正确。

When the carrier moves from left to right or from right to left, the encoder value cannot change suddenly (namely, the value at a certain position suddenly changes to zero when the carrier moves in the same direction, and then increases or decreases incrementally). If this happens, please check that whether the main motor encoder or the main motor servo frequency setting is incorrect.

## 9. 电磁铁高压

### Magnet High Time(Electromagnet high voltage)

范围：1 - 10

Scope: 1 - 10

默认：5

Default: 5

设置三角动作控制采用电磁铁的高压值。

Set the electromagnet's high voltage value during cam control action.

备注：

Note:

数值大小与灵敏度成反比，数值越大，灵敏度越低；与通电时间呈正比，数值越大，通电时间越长。当电磁铁长时间使用后，请将此参数恰当调大一些。

The value is inversely proportional to the sensitivity, that is, the larger the value, the lower the sensitivity; it is proportional to the power-on time, that is, the larger the value, the longer the power-on time. It is recommended to adjust this value to a great value as appropriate when the electromagnet is used for a long time

## 10. 纱嘴电磁铁高压

### Yarn High Time(Electromagnet high voltage of yarn feeder)

范围：1- 10



Scope: 1- 10

设定纱嘴控制使用电磁铁的高压值。

Set the electromagnet's high voltage value for yarn feeder control.

备注:

Note:

数值大小与灵敏度成反比, 数值越大, 灵敏度越低; 与通电时间呈正比, 数值越大, 通电时间越长。当电磁铁长时间使用后, 请将此参数恰当调大一些。

The value is inversely proportional to the sensitivity, that is, the larger the value, the lower the sensitivity; it is proportional to the power-on time, that is, the larger the value, the longer the power-on time. It is recommended to adjust this value to a great value as appropriate when the electromagnet is used for a long time

## 11. 机头移出使能

### Full-Range(Enable carrier out)

打开: 在编织时, 每行可使机头跑到左、右限位设定点 (忽略花样宽度)

Enabled: Set the point for the carrier to move to the left and right limit of each row during knitting (omit the pattern width).

关闭: 机头按照花样宽度控制行程

Disabled: The carrier controls the stroke based on pattern width.

## 12. 报警灯音量

### Alert Volume(Alarm lamp volume)

范围: 1~10

Scope: 1~10

设定报警灯的音量大小

Set the alarm lamp volume.

## 13. 报警持续时间

### Alarm Time(Alarm duration)

范围: 0~600 秒

Scope: 0~600s

若设定为 0, 则持续报警声直至关闭报警

If this value is set to 0, the alarm continues until the alarm is turned off.

## 14. 自动锁行

### Auto-Lock Line

打开：在编织时，自动执行行锁定

Enabled: During knitting, automatically perform row locking.

关闭：在编织时，不自动执行行锁定

Disabled: During knitting, do not automatically perform row locking.

## 15. 语言切换

### Language

切换系统使用的语言类型

Set the language type used when switching the system.

## 16. 行程优化

### Rrange optimization

略

Omitted

## 17. 加油控制配置

### Oil Ctrl(Fueling control configuration)

设定控制加油的方式

Set the fueling control method.

预配置：根据系统配置设定来控制加油方式

Def.Setup(Preset configuration): Set the fueling control method based on system configuration.

主控加油：主控控制加油

K-bed Oil(Master controller fueling): The master controller controls fueling

机头加油：机头控制加油

Head Oil(Carrier fueling): The carrier controls the fueling

加油关闭：关闭加油

No Oil(Fueling disabled): Disable fueling

## 18. 日光灯配置

### Light Ctrl(Fluorescent lamp configuration)

定上、下日光灯控制方式。

Set the control method for the upper and lower fluorescent lamps.



预设配置：根据系统配置文件设定日光灯控制方式。

Def.Setup(Preset configuration): Set the fluorescent lamp control method based on the system configuration files.

单灯输出：单灯按钮、当只有一个日光灯时使用。

Mode 1(Single lamp output):Single light button, used when there is only one fluorescent lamp.

双灯双控：双灯按钮、每个各自控制上、下日光灯。

Mode 2(Double lamp and double control): Dual-lamp button: each controls the upper and lower fluorescent lamps.

双灯单控：双灯按钮、每个同时控制上、下日光灯。

Mode 3(Dual-lamp single-control): Dual-lamp button: each controls the upper and lower fluorescent lamps at the same time.

## 19.翻针度目置零

### Traf Zero STI(Set needle reversing stitch to zero)

打开：翻针动作时，系统正常执行此操作

Enabled: During needle reversing, the system performs this operation normally.

关闭：翻针动作时，系统根据默认段来控制度目大小

Disabled: During needle reversing, the system controls the stitch size based on default segment.

## 20.机头重绑定

### System Relock(Carrier rebinding)

用于使用分期付款出售横机整机，为防止非法破解主控系统增加绑定机头小主板选项，提高破解难度及成本。

It is used for the installment payment for selling the flat knitting machine. To prevent illegal breach of the master controller system, add the binding carrier's small main board option to improve the cracking difficulty and cost.

主控+机头小主板绑定：

Master controller + carrier small main board binding:

更换主板后需重新根据分期付款查询中的机头小主板加密用 ID 号重新生成主板加锁密钥后输入主板建立绑定关系。

After replacing the main board, it is necessary to re-generate the main board locking key according to the carrier's small main board encryption ID in the installment payment query, and then input it into the main board to establish the binding relationship.

机头有锁，更换主板后未重新加锁，运行过程中将间隙性提示报警 30 分钟后还未重新加锁则自动锁住系统后无法使用。必须输入匹配绑定关系的加锁文件至主板后方能重新正常使用。

The carrier has a lock. If the main board is not re-locked after replacement, an intermittent prompt alarm will

be given for 30 minutes during operation. If the main board is not re-locked after that, the system will automatically be locked and cannot be used. The locking lock that matches the binding relationship must be input to the main board to use it normally again.

主板有锁，更换机头小主板后，进入系统参数后单击机头重绑定后关机重启生效。

The main board has a lock. After replacing the carrier's small main board, enter System Parameters and click the carrier to rebind, which only take effect after power off and restart.

## 21.空系统预选提示

### Reset Preselect(Empty system pre-selection prompt)

3 针道山板将复位后右行的第 2 个空行强制通过最后系统选针器将首行编织的预选针选出显示在针板上。

The 3-needle channel knitting plate forces the display of the second empty row on the needle plate after resetting and moving to the right when the final system needle selector selects the pre-selected needles of the first row knitting.

便于横机操作工在花型初次选择后将使用到的纱嘴根据预选针脚位置停放，以便编织时能正常携带上。

This helps the flat knitting machine operator to stop the used yarn feeders based on the pre-selected pin position after initial selection of pattern, so that it can be carried during knitting.

切换选择：关闭/打开

Switch between: Enabled/disabled

打开：启用

Enabled: Enable

关闭：禁用（默认）

Disabled: Disable (Default)

## 22.行数优化使能

### Dsonv Enabled(Enable row count optimization)

用于系统编号低的花型输入系统编号大的机型时，通过系统程序转化进行行数优化而减少编织行数，该功能等同制版导入后重新按高编号机型编译。

It is used for optimizing row and reducing the number of knitting rows through system program conversion when the pattern with a low system number is input into the model with a large system number. This function is equivalent to compiling of the model with a high number after the program is imported.

## 23.选针速度补偿使能

### Jap.Speed Fixup Enable(Enable needle selection speed compensation)

略

Omitted



## 4.2 罗拉相关参数

### Roller Parameters

#### 1. 主罗拉速比

##### Roller Ratio(Main-roller speed ratio)

范围: 1~16

Scope: 1~16

设定步进主罗拉卷布速度比率

Set the step main-roller's cloth rolling speed ratio.

备注:

Note:

速度大小与卷布速度成正比, 数值越大, 卷布越快

The speed is directly proportional to the cloth rolling speed, namely, the larger the value, the faster the cloth rolling.

#### 2. 副罗拉转动时间

##### Roller2 time(Sub-roller rotation time)

范围: 1~500

Scope: 1~500

#### 3. 步进罗拉驱动

##### Step roller choice

类型选择: 1 - 3

Type selection: 1 - 3

步进罗拉驱动 0: 主罗拉内置步进, 副罗拉内置力矩。

Step roller drive 0: Main-roller internal step, sub-roller internal torque.

步进罗拉驱动 1: 主罗拉接输出端口步进

Step roller drive 1: Main-roller is connected to the output port step

步进罗拉驱动 2: 主罗拉外置步进

Step roller drive 2: Main-roller external step

步进罗拉驱动 3: 主罗拉内置步进, 副罗拉外置步进

Step roller drive 3: Main-roller external step, Sub-roller internal step

备注:

Note:

该设置项适用于一体机。

This setting is applicable for the all-in-one machine.

## 4.3 选针器相关参数

### Jacquard Parameters

#### 1. 选针器右行补偿

**Jacquard Right(Compensation after the needle selector moves to the right)**

范围:  $\pm 7.9$

Scope:  $\pm 7.9$

最小设定单位: 0.1 (针)

Set the minimum unit: 0.1 (needle)

设定选针器右行时的补偿值

Set the compensation value when the needle selector moves to the right.

备注:

Note:

此参数控制选针器刀头右行编织时的提前、滞后量 (针), 对右行编织的所有选针器生效。

This parameter controls the advance and lagging amount (needle) when the needle selector blade head moves to the right, which works for all needle selectors that knit to the right.

补偿正、负号说明:

Description of the positive and negative symbols of compensation:

‘-’表示工作刀头提前工作

‘-’ indicates that the working blade head works in advance.

‘+’表示工作刀头滞后工作

‘+’ indicates that the working blade head is lagged.

#### 2. 选针器左行补偿

**Jacquard Left(Compensation after the needle selector moves to the left)**

范围: -7.9 - 7.9

Scope: -7.9 - 7.9

设定单位: 0.1 (针)

Set the unit: 0.1 (needle)

设定选针器左行时的补偿值

Set the compensation value when the needle selector moves to the left.

编纂: 浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

沈国龙, 匡越、王宇鹏

Shen Guolong, Kuang Yue, Wang Yupeng

备注:

Note:

此参数设定选针器刀头左行编织时的提前、滞后量(针), 对左行编织的所有选针器生效。

This parameter controls the advance and lagging amount (needle) when the needle selector blade head moves to the left, which works for all needle selectors that knit to the left.

补偿正、负号说明: '-'表示工作刀头提前工作; '+'表示工作刀头滞后工作。

Description of the positive and negative symbols of compensation: '-' indicates that the working blade head works in advance; '+' indicates that the working blade head is lagged.

### 3. 选针器刀片个数

#### Knife Number(Number of needle selector blades)

范围: 3~8 (刀)

Scope: 3~8 (blade)

一个选针器工作刀片的个数

Number of working blades of one needle selector

### 4. 选针器重选

#### Jacquard Mode(Re-selection of needle selector)

打开: 选针器复选工作(复选时刀头参与选针动作)

Enabled: Re-selection of the needle selector works (The blade head is involved in the needle selection during re-selection).

关闭: 选针器复选节能(复选时刀头全上至选针位)

Disabled: Re-selection of the needle selector saves energy (All blade heads are moved up to the needle selection positions during re-selection).

### 5. 针器高压

#### Jaq.High Time(Needle selector high voltage)

范围: 1~10

Scope: 1~10

设定选针器高压值(灵敏度)

Set the needle selector's high voltage value (sensitivity)

数值大小与灵敏度成反比, 数值越大, 灵敏度越低; 与通电时间呈正比, 数值越大, 通电时间越长。一般当选针器长时间使用后, 请将此参数恰当调大一些。

The value is inversely proportional to the sensitivity, that is, the larger the value, the lower the sensitivity; it is proportional to the power-on time, that is, the larger the value, the longer the power-on time. It is recommended to adjust this value to a great value as appropriate when the needle selector is used for a long time.

编纂: 浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

沈国龙, 匡越、王宇鹏

Shen Guolong, Kuang Yue, Wang Yupeng

## 4.4 度目电机参数

### Stitch Parameters

#### 1. 度目最大值

##### Stitch Max(Maximum value of stitch)

范围: 100~750

Scope: 100~750

设定度目最大值用以限制其他设定度目值太大。设置度目最大值后, 若有其他度目值填写大于度目最大值, 则度目最大值生效, 工作度目值为【度目最大值】。

Set the maximum value of stitch to avoid too large stitch value. After setting the maximum value of stitch, if a stitch value is greater than the maximum value of stitch, the maximum value of stitch takes effect, and the working stitch value is [Maximum value of stitch].

#### 2. 密度马达复位速度

##### STI Rest Speed(Density motor resetting speed)

范围: 1~10

Scope: 1~10

默认: 4

Default: 4

设定密度马达归零时复位的速度

Set the resetting speed when the density motor is reset to zero.

数值越大, 时间越短, 密度马达工作速度越快。

The larger the value and the shorter the time, the faster the working speed of the density motor.

#### 3. 密度马达工作速度

##### STI Work Speed(Working speed of the density motor)

范围: 1~10

Scope: 1~10

默认: 6

Default: 6

设定密度马达到工作位置时的速度

Set the speed when the density motor reaches the working position

数值越大, 时间越短, 密度马达工作速度越快。

The larger the value and the shorter the time, the faster the working speed of the density motor.

## 4. 度目检查设置

### STI Check(Stitch inspection setting)

范围: 0~200

Scope: 0~200

0: 检查关闭

0: Disable setting

设定度目电机最大失步报警检查阈值, 当度目在出编织区后检测失步大于此阈值机头将触发报警、停车。该值选择需根据织物、机械构造等选择一个合理的参数。

Set the maximum out-of-step alarm inspection threshold of the stitch motor. If the detected out-of-step of the motor when the stitch is out of the knitting zone is greater than this thread value, the carrier will trigger the alarm and stop. A reasonable value should be selected for this based on the fabric and mechanical structure.

失步可能出现受阻未到设定值, 过冲大于设定值等 2 种情况, 报警提示

Out-of-step may occur when the carrier is obstructed and does not reach the set value or the overshoot exceeds the set value. Then, a warning will pop up.

## 5. 度目电机最大速度

### STI Max Speed(Maximum speed of stitch motor)

单独控制度目电机在简易机型中有分步执行以及全系机型可变量度目工作行中设置度目电机的最大工作速度, 一般情况下该设置速度大于基本编织时的速度值。

It is used for controlling the stitch motor separately. In the simple model, there is step-by-step execution; in the whole series of models, the maximum speed of stitch motor can be set in the variable stitch working row. In general, the speed is set to be higher than the speed value in basic knitting.

设置度目电机最大速度的前提需要保证在相应的机头编织速度下, 度目电机能按步可靠执行。

The premise of setting the maximum speed of the stitch motor is to ensure that the stitch motor can be reliably executed step by step under the corresponding carrier knitting speed.

## 6. 同行编吊度目

### Knit+Tuck STI(Same-row knit and stuck stitch)

范围: -720 - 720

Scope: -720 - 720

**简双及以上改进型支持 <编织, 吊目> 山板专用设置项目, 预选 3 针道机型无效。**

**The simple models with two channels and improved models support <knit and tuck> special items for the knitting plate, which does not work for the pre-selected 3-channel model.**

同行编吊 (俗称: 同行吊目), 即某一编织系统 CNT 行同时支持 <编织, 吊目>, 由于简易直选机型的山板是 2 针道一般情况下是不支持该编织组织类型。

Same-row knit and stuck (Commonly known as: same-row tuck), namely, one system CNT row supports the



<knit, tuck> at the same time. However, the knitting plate for the simple and direct-selection model is 2-channels, which generally does not support this knitting plate stitch type.

部分横机生产厂改进了简双、简3等山板结构，支持所谓的'同行吊目'功能，但与大横机的3针道预选、复选直接编织系统支持还是有所不同的。

Some flat knitting machine manufacturers have optimized the knitting plate structure with 2 or 3 needle channels, namely, the so called "same-row tuck" function, which is different from the direct support of knitting system by the flat knitting machine with 3-needle channel pre-selection and re-reselection.

实现机制：

Realization mechanism:

采用<编织，吊目>相邻2个系统进行选针拆分，将H位吊目的选针通过先行编织系统的空系统选针然后选好的织针合并至拆分后的A位编织系统中，最终通过H、A位选针接力方式完成<编织，吊目>编织行。

Split the needle selection with the 2 adjacent <knit, tuck> systems; select the needle of the Position H tuck through the empty system of advanced knitting system, then combine the selected needles to the split Position A knitting system, and finally complete the knitting row of the <knit, tuck> in succession by finishing the needle selection of Positions H and A.

为防止将已选好的H位吊目织针被相邻系统中间的两个度目电机干涉，度目机构支持负数位置移动进行避让。

To prevent the tuck stitch needles in the selected Position H from being interfered by the two stitch motors in the middle of adjacent system, the stitch mechanism supports the movement in the negative position for avoiding.

## 4.5 摇床相关参数

### Rack Parameters

#### 1. 摇床位置

##### Rack Place

变更密码：8888

Change password: 8888

设定横机摇床机构安装针板位置

Set the installation position of needle plate for the rock mechanism of flat knitting machine.

前床：前针板位移。当摇床测试方向为R时，前床针板向右位移；当摇床测试方向为L时，前床针板向左位移。

Front needle bed: front needle plate displacement. The front needle plate moves to the right when the rock is tested in the R direction, and to the left when the rock is tested in the L direction.

后床：后针板位移。当摇床测试方向为R时，后床针板向左位移；当摇床测试方向为L时，后床针

板向右位移。

Back knitting: back needle plate displacement. The back needle plate moves to the left when the rock is tested in the R direction, and to the right when the rock is tested in the L direction.

后双：双针床单电机

Back dual knitting: Dual needle bed with single motor

## 2. 摇床间隙补偿

### Rack Comp(Rock gap compensation)

范围：0~999

Scope: 0~999

设定丝杆间隙补偿值

Set gap compensation value of the screw rod.

备注：

Note:

由于丝杆，螺母制造品质及长时间运行，造成相互磨损现象，摇床在反向移动时，会因为间隙原因而未到达实际相对位置。便通过间隙补偿方式达到实际相对位置。

As the mutual wear may occur due to the manufacturing quality and long-term operation of the screw rod and nut, the rock may not reach the actual relative position because of the gap when moving in the reverse direction. Gap compensation is used for the rock to arrive at the actual relative position.

例如：

Example:

L1 -> R1, 摇床反向位移，最终位移按 R1 数值+间隙修正执行。

If L1 -> R1 and the rock moves in the reverse direction, the final displacement is subject to the R1 value + gap.

L1 -> L2, 摇床同向位移，最终位移按 L2 数值执行。

If L1 -> L2 and the rock moves in the same direction, the final displacement is subject to the L2 value.

## 3. 摇床速度设定

### Rack Speed(Rock speed settings)

设定针板摇床时摇床伺服电机的速度

Set the servo motor speed of the rock for the needle plate.

## 4.6 生克相关参数

### Sinker Parameters

#### 1. 生克有效

##### Sinker Enable(Effective sinker)

打开：生克电机有效。

Enabled: sinker motor active.

关闭：生克电机无效。

Disabled: sinker motor inactive.

#### 2. 生克提前

##### SINK ADV(Sinker in advance)

范围：-50~100

Scope: -50~100

设定生克电机动作得提前量。

Set the advance value of sinker motor operation.

备注：

Note:

以编织区为基准，如果设定数值为 N,则生克电机将在出编织区之前提前工作。

Based on the knitting zone, if the value is set to N, the sinker motor will work in advance before exiting the knitting zone.

#### 3. 生克完成点

##### SINK Detect(Sinker completion point)

范围：0~100

Scope: 0~100

设定生克电机提前完成的针数。

Set the number of needles completed by the sinker motor in advance.

备注：

Note:

以编织区为基准，如果设定值为 N，则生克电机将在出编织区之前完成动作。

Based on the knitting zone, if the value is set to N, the sinker motor will complete the action before exiting the knitting zone.

## 4. 生克速度

### Sink Speed

范围: 1500~7000

Scope: 1,500~7,000

设定生克运行速度。

Set the sinker operation speed.

## 5. 生克最大值

### Sinker Max

范围: 100 - 5000

Scope: 100 - 5,000

生克控制机构可设置的最大边界值，即生克电机设置窗口中的参数设置大于该值后将自动截取并按此设置执行。

The maximum boundary value available for the sinker control mechanism, which will be automatically intercepted and executed accordingly when the parameter setting in the sinker motor setting window is larger than this value.

## 6. 生克类型

### Sinker Mode

切换选择: 普通生克 / 交叉生克

Switch between: Normal sinker / Recv sinker

- **普通生克**

#### Normal sinker

生克电机控制机构在最大值情况下不会有沉降片在摇床指令下出现碰撞干涉问题。

For the sinker motor control mechanism under the maximum value, the sinker is free from collision interference under the rock instructions.

- **交叉生克**

#### Recv sinker

交叉生克顾名思义表示沉降片在某些位置段有交叉现象，在摇床指令行中如程序不做特别处理将出现碰撞干涉。

Cross sinker, as the name implies, means cross sinkers in some segments. Collision interference will occur in execution of the rock instructions in the event of no special processing of the program.

特别处理

Special processing

a. 生克控制机构在出编织区后立即到沉降片不干涉位置（前、后沉降片复位），机头到换向点后生

克机构按设定参数执行到位。

After exiting the knitting zone, the sinker control mechanism immediately arrives at the non-interference position of the sinker (the front and rear sinkers are reset), and the sinker mechanism acts according to the set parameters after the carrier reaches the reversing point.

- b. 中途复位时，生克机构需先执行沉降片归零 -> 不干涉位置，然后再执行机头复位其他指令动作。  
During mid-reset, the sinker mechanism executes the sinker to return to zero -> non-interference position, before executing other instruction actions for carrier reset.

## 7. 交叉生克阈值

### 7. Cross Sinker Limit

系统参数设定 (1/2)

系统基本参数	(+)	生克最大值	550
罗拉相关参数	(+)	生克类型	普通生克
选针器相关参数	(+)	交叉生克阈值	150
度目电机参数	(+)	翻针生克最大值	0
摇床相关参数		...模式	相对位置
生克相关参数		...模式	关闭
生克有效		...复位	300
生克提前			
生克完成点			
生克速度			

请输入密码  
\*\*\*\*

0 1 2 3 4 +/√ ^ .  
5 6 7 8 9 < v >  
退出 删除 确定

备份 左行 右行 其他 定位 展开 上页 下页







- **交叉生克阈值**  
**Cross sinker threshold**

交叉式生克机构前、后生克最大安全位置（摇床无干涉位置），设定值大于阈值则按交叉式生克机制工作。

Maximum safe position for front and rear sinker of the cross sinker mechanism (no interference position of rock). If the set value is greater than the threshold, the cross sinker mechanism shall prevail.

- **设置方法**  
**Setting method**

单击交叉生克阈值数值区，弹出请输入密码框后输入 6666。

Click the cross sinker threshold value area, and enter 6666 in the pop-up password box.

再次弹出交叉生克阈值设置窗口，先单击 复位 按钮保证前、后生克位置在设定的前、后沉降片复位值。

The cross sinker threshold setting window will pop up again. Click the Reset button to ensure that the front and back sinker positions are within the preset reset values of the front and back sinkers.

输入参数后单击 设置 按钮使生克机构位移到设定位置，然后使用塞尺等工具检测前、后沉降片之间的间隙，建议留有安全的空隙并且需在针床最大工作范围进行多点检测。

Input parameters, click the Set button to shift the sinker mechanism to the set position, and then detect the gap between the front and rear sinkers with tools such as feeler gauge. Reservation of safety gap is recommended, and multipoint detection is required in the maximum working range of the needle bed.



退出系统参数设定窗口后，系统将自动进入 复位 模式。

Exit the system parameter setting window, and the system will automatically enter the reset mode.

当生克工作值设置小于等于阈值，不执行交叉生克控制机制，此时可以设置摇床位移机头不停车等待功能。

When the sinker working value is set less than or equal to the threshold, the cross sinker control mechanism is not implemented. At this time, the function of rock displacement without carrier suspension may be set.

摇床位移不停车设置详见伺服参数设置：附件.伺服参数设置

For detailed settings of rock displacement without carrier suspension, refer to the servo parameter settings: Appendix. Servo Parameter Settings.

## ● 交叉式生克工作原理及控制机制

### Working principle and control mechanism of cross sinker

交叉式生克主要适用于沉降片对织物线圈牵拉、握持有较大需求的场合，例如鞋面编织、废纱起头等。

Cross sinker is mainly suitable for occasions with large demands of fabric loop draw-off and holding by the sinker, such as the shoe upper knitting, and waste yarn starting, etc.

交叉式生克由于工作范围较大，如动作指令文件 CNT 有翻、接针等有摇床位移指令时而生克未在安全阈值以下按现有的控制方式则将发生前、后沉降片干涉而引起沉降片碰撞损坏。

Cross sinker has a large working scope, If the action instruction file CNT involves needle turning, needle connection and rock displacement instruction while the sinker is not under the existing control mode below the safety threshold, interference of the front and rear sinker will occur and trigger collision damage of the sinker.

## ● 工作机制

### Working mechanism

机头出编织区后生克从工作位置到达沉降片复位位置（沉降片不作用位）。

After the carrier is out of the knitting zone, the sinker reaches the reset position of the sinker from the working position (non-action position of the sinker).

机头到换向点后生克再继续执行沉降片工作设定位置。

After the carrier reaches the reversing point, the sinker will continue to set working position of the sinker.

摇床动作指令时机头在前、后沉降片复位位置等待直至针床位移结束，到换向点后生克再执行工作参数值。

During the rock action instruction, the carrier waits at the reset position of the front and back sinkers until the end of the needle bed displacement, and reaches the reversing point when the sinker executes the working parameter value.

目前主控、伺服正在逐步优化交叉生克大于阈值时摇床位移机头不停车等待，当摇床速度、摇床位移量过大以及编织速度过快则仍然需要机头停车等待。

At present, the master controller and servo are gradually optimizing the rock displacement without carrier suspension in the event of cross sinker beyond the threshold. Carrier suspension is still required in the event of rock overspeed, rock over-displacement and knitting overspeed.

## 8. 翻针生克最大值

### Sinker Recv Max(Maximum sinker value during needle reversing)

范围: 0 - 999

Scope: 0 - 999

翻、接针指令时生克最大边界设定值, 即当生克电机设置窗口中翻、接针设定大于此值将自动截取按该项值执行。

The maximum boundary setting value of sinker during the needle turning and connection instruction, which will be automatically intercepted and executed accordingly when the needle turning and connection setting value in the sinker motor setting window is larger than this value.

## 9. 生克数据模式

### Sinker Data Mode

切换选择: 相对位置 / 绝对位置

Switch between: relative position / absolute position

- **相对位置**

#### Relative position

以前、后沉降片复位为参考零位在‘生克电机设置’窗口中设置翻针、编织等参数。

Set needle reverse and knitting parameters in the “Sinker motor settings” window with the front and rear sinker reset as the zero position reference.

建议用户使用这种相对位置设置方式简化设置、修改流程。

This setting of relative position is recommended to simplify the setting and modification process.

- **绝对位置**

#### Absolute position

以生克零位传感器为参考零位在‘生克电机设置’窗口中生克输入左行、右行参数设置。

Enter parameters for moving to the left/right in the “Sinker motor settings” window with the sinker zero position sensor as the zero position reference.

## 10. 系统生克模式

### System Sinker

切换选择: 关闭 / 生效

Switch between: Disabled/enabled

- **关闭**

#### Disabled

机头全部编织系统共用前、后一组生克控制机构。

All knitting systems of the carrier share a group of sinker control mechanism at the front and rear part.

编纂: 浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

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接线方式标准采用后 1 系统前 X 系统，其中 X 为系统数。

Rear 1 system and front X system is adopted as the wiring standard, wherein X is the number of system.

● **生效**

**Enabled**

每个编织系统前、后均独立配置一组生克控制机构，一旦选择生效后关机、重启生克相关参数分类将根据系统数自动增加可独立设置‘X 系统前、后生克复位’参数。

The front and rear part of each knitting system are independently equipped with a group of sinker control mechanisms. Once shutdown after sinker, and restart of classification of sinker-related parameters are selected, the “Front and rear sinker reset of X system” parameter that can be set independently will be added automatically according to the number of system.





## 11. 后沉降片复位

### B.Sinker Reset

范围: -650 - 650 (脉冲)

Scope: -650 - 650 (pulse)

设定后沉降片生克控制机构在机头原点复位后, 沉降片复位位置 (一般为不作用位置) 与零位传感器的距离值。

The distance between the reset position of the sinker (generally the inactive position) and the zero position sensor, after setting of the carrier origin reset of the rear sinker control mechanism.

## 12. 前沉降片复位

### F.Sinker Reset

范围: -650 - 650 (脉冲)

Scope: -650 - 650 (pulse)

设定前沉降片生克控制机构在机头原点复位后, 沉降片复位位置 (一般为不作用位置) 与零位传感器的距离值。

The distance between the reset position of the sinker (generally the inactive position) and the zero position sensor, after setting of the carrier origin reset of the front sinker control mechanism.

## 4.7 可变度目参数

### Variable stitch parameters

一个编织行中通过按需控制度目电机根据针位置变化实现织物风格变化、功能实现等。

Realize fabric style change and function according to the needle position through controlling stitch motors as needed in a knitting row.

编织速度 = 80

Knitting speed = 80

最大可变范围：150（脉冲）/ 1 英寸

Maximum variable range: 150 (pulse) / 1 inch

- 可变度目变大、变小补偿正负数值说明

Positive/negative value description of increase and decrease compensation of variable stitch

- 正值为提前（0.1 针）。  
Positive value indicates advancing (0.1 needle).
- 负值为滞后（0.1 针）。  
Negative value indicates lagging (0.1 needle).

#### 4.7.1 变大补偿左行

##### L-Variable Stitch Adj1(Increase compensation when moving to the left)

范围：-9.9 - 9.9（针）

Scope: -9.9 - 9.9 (needles)

左行可变度目变大针位置执行点偏移修正。

Execute point offset correction in the needle position with increase of variable stitch when moving to the left

#### 4.7.2 变小补偿左行

##### L-Variable Stitch Adj2(Decrease compensation when moving to the left)

左行可变度目变小针位置执行点偏移修正。

Execute point offset correction in the needle position with decrease of variable stitch when moving to the left.

范围：-9.9 - 9.9（针）

Scope: -9.9 - 9.9 (needles)

#### 4.7.3 变大补偿右行

##### R-Variable Stitch Adj1(Increase compensation when moving to the right)

右行可变度目变大针位置执行点偏移修正。

Execute point offset correction in the needle position with increase of variable stitch when moving to the right.

范围: -9.9 - 9.9

Scope: -9.9 - 9.9

#### 4.7.4 变小补偿右行

##### R-Variable Stitch Adj2(Decrease compensation when moving to the right)

右行可变量目变小针位置执行点偏移修正。

Execute point offset correction in the needle position with decrease of variable stitch when moving to the right.

范围: -9.9 - 9.9

Scope: -9.9 - 9.9

#### 4.7.5 平移补偿

##### Variable Stitch Adj3(Horizontal displacement compensation)

可变量目控制曲线整体平移。

Overall horizontal displacement of variable stitch control curve.

范围: -9.9 - 9.9

Scope: -9.9 - 9.9

### 4.8 探针相关参数

#### Needle Probe Parameters

##### 1. 探针类型

###### NPP Mode(Probe type)

探针作用在编织针踵被异常切断后织针露出在针床上、牵拉问题产生织物浮片等场景的检测, 探针一般在编织机头上前、后各安装 1 个。

The probe is used to detect knitting needles exposed on the needle bed upon abnormal cutting of the knitting needle heel, and floating fabrics due to draw-off. It is installed on the front and rear part of the carrier respectively in general.





弹出式窗口探针类型选择。

Probe type selection in the popup window.

## ● 配置默认

### Default configuration

按系统配置文件设定（默认）。

Set by system configuration file (default).

机器配置文件定义项：

Machine configuration file definition items:

<探针器位置> = X

<Probe position> = X

>0: 探针器检测片在机头边框外

>0: probe detection piece is outside the carrier frame

<0: 探针器检测片在机头边框内

<0: probe detection piece is within the carrier frame

<探针器安装方式> = X

<Probe installation method> = X

0: 前右后左

0: right side on the front and left side on the rear

1: 前左后右

1: left side on the front and right side on the rear

## ● 普通探针

### Normal probe

普通探针（非自恢复），检测片触发报警后无恢复至不报警机构需人工处理。

Common probe (non-self-recovery): if the detection piece triggers a alarm while fails to resume to normal state, manual processing is required.

## ● 前右后左

### F.R.B.L(Right side on the front and left side on the rear)

探针在机头天桥铝框上以前右后左安装。

The probe is installed on the right side of the front and left side of the rear of the carrier overpass aluminum frame.

## ● 前左后右

### F.L.B.R(Left side on the front and right side on the rear)

探针在机头天桥铝框上以前左后右安装。

The probe is installed on the left side of the front and right side of the rear of the carrier overpass aluminum frame.

目前国内探针使用类型有普通、自恢复、红外自恢复等。

At present, the probes used in China include common type, self-recovery type, infrared self-recovery type and so on.

前右后左、前左后右这种选择是适用于自恢复探针场合。

Right side on the front and left side on the rear, and left side on the front and right side on the rear are suitable for self-recovery probes.

自恢复探针离开报警位置后其在永久磁钢同性相斥下回复至初始位置。

After leaving the alarm position, the self-recovery probe returns to the initial position under repulsion of the permanent magnetic steel.

## 2. 左侧探针位置微调

### Left-NPP adjust(Left probe position fine-tuning)

左侧探针安装位置进行微调修改、设置。

Modify and set fine-tuning of the left probe installation position.

范围: -50 - 50 (mm)

Scope: -50 - 50 (mm)

## 3. 右侧探针位置微调

### Right-NPP adjust(Right probe position fine-tuning)

右侧探针安装位置进行微调修改、设置。

Modify and set fine-tuning of the right probe installation position.

范围: -50 - 50 (mm)

Scope: -50 - 50 (mm)

## 4. 探针延时

### NPP Delay(Probe delay)

探针触发后报警延时调整。

Adjust alarm delay after the probe is triggered.

范围: 0 - 600 (ms)

Scope: 0 - 600 (ms)

## 4.9 电机电流参数

### Step current parameters

根据编织山板配置、电机的安装规格、参数对度目电机、生克电机、三角电机、推针电机等类别设

置合适的工作电流。

Set the appropriate working current according to the configuration of knitting plate, installation specifications of motor, parameter pair stitch motor, sinker motor, cam motor, needle pushing motor and other categories.

## 1. 度目电机电流

### Stitch Motor Current

度目电机工作电流设置，请匹配电机实际参数进行合理设置，一旦设置参数大于实际承载电流将引起电机过热、作用扭矩减小等问题。

Set working current of stitch motor. Please set it appropriately according to the actual motor parameters. Once the set parameter is larger than the actual bearing current, the motor will overheat and the torque will decrease.

范围：0 - 2000 (mA)

Scope: 0 - 2,000 (mA)

默认：0 (800mA)

Default: 0 (800mA)

#### ● 非沉针式 / 沉针式

##### Non-needle sinking type / needle sinking type

建议用户使用高速、大扭矩度目电机在非沉针式结构上可以更好的实现度目分步陡曲线防止织物旧线圈被压破问题、一行中更多的度目分步实现等。

The high speed stitch motor with huge torque is recommended for the non-needle sinking type structure to get a steep curve for stepwise stitches, prevent fabric loop from damages, and ensure stepwise realization of more stitches in one row.

对于非沉针式、沉针式有更好的可变度目过渡区实现等。

For non-needle sinking type and needle sinking type, there is a better variable stitch transition zone.

## 2. 生克电机电流

### Sinker Motor Current

生克电机工作电流设置，请参照电机实际参数进行合理设置。

Set working current of sinker motor. Please set it appropriately according to the actual motor parameters.

范围：0 - 2000 (mA)

Scope: 0 - 2,000 (mA)

## 3. 三角电机电流

### Work Motor Cur(Cam motor current)

三角电机工作电流设置，请参照电机实际参数进行合理设置。

Set working current of cam motor. Please set it appropriately according to the actual motor parameters.

范围: 0 - 2000 (mA)

Scope: 0 - 2,000 (mA)

## 4. 推针电机电流

### Action Motor Cur(Needle pushing motor current)

推针电机工作电流设置, 请根据电机实际参数进行合理设置。

Set working current of needle pushing motor. Please set it appropriately according to the actual motor parameters.

范围: 0 - 2000 (mA)

Scope: 0 - 2,000 (mA)

## 4.10 电机相关参数

### Step motor parameters

#### 1. 三角电机速度

##### JaqCam Speed

范围: 1500 - 7000

Scope: 1,500 - 7,000

三角电机工作速度设置, 请根据实际工位、控制机构设置合理的参数。

Set working speed of cam motor. Please set it appropriately according to the actual station and control mechanism.

#### 2. 推针电机速度

##### Needle pushing motor speed

范围: 1500 - 7000

Scope: 1,500 - 7,000

推针电机工作速度设置, 请根据实际控制机构、使用的控制电机规格、参数设置合理的数值。

Set working speed of needle pushing motor. Please set it appropriately according to the actual control mechanism, and specifications and parameters of the control motor used.

#### ● 推针电机释义

##### Needle pushing motor definition

推针电机用于替代早期机械换向机构控制的 A 位三角 (Selector raising cam) , 因采用了电机独立控制实现了不编织时 A 位三角可在不工作位置。

The needle pushing motor is used to replace the selector raising cam controlled by the early mechanical reversing mechanism. With independent motor control, the selector raising cam may be in the inactive

position when no knitting is performed.

机头测试 -> 推针电机测试中的空行按钮便是不工作位。

The empty row button in the carrier test -> needle pushing motor test involves the inactive position.

### 推针电机控制优点

#### Needle pushing motor control advantages

- 增加了不工作编织系统推针三角在**不工作位**，取代了机械装置结构复杂、往返切换工作位置所造成的机械磨损、噪音等。

Additional inactive knitting system needle-pushing cams are set in the inactive position, to eliminate the mechanical wear and noise caused by the complex structure of the mechanical device and the round-trip switching of the working position.

- 根据山板构造可控调整最佳的推针三角切入位置。

The optimal cutting position of the needle-pushing cam may be controlled and adjusted according to the knitting plate structure.

- 增加了推针位置的检测保护可减少推针三角未到位情况发生。

Detection protection of the needle pushing position is provided to prevent the needle pushing cam from being not in place.

推针三角未到位后 A 位选针后织针未能正常进入相应针道。

If the needle pushing cam is not in place, the knitting needle cannot enter the corresponding channel properly after needle selection at the selector raising cam.

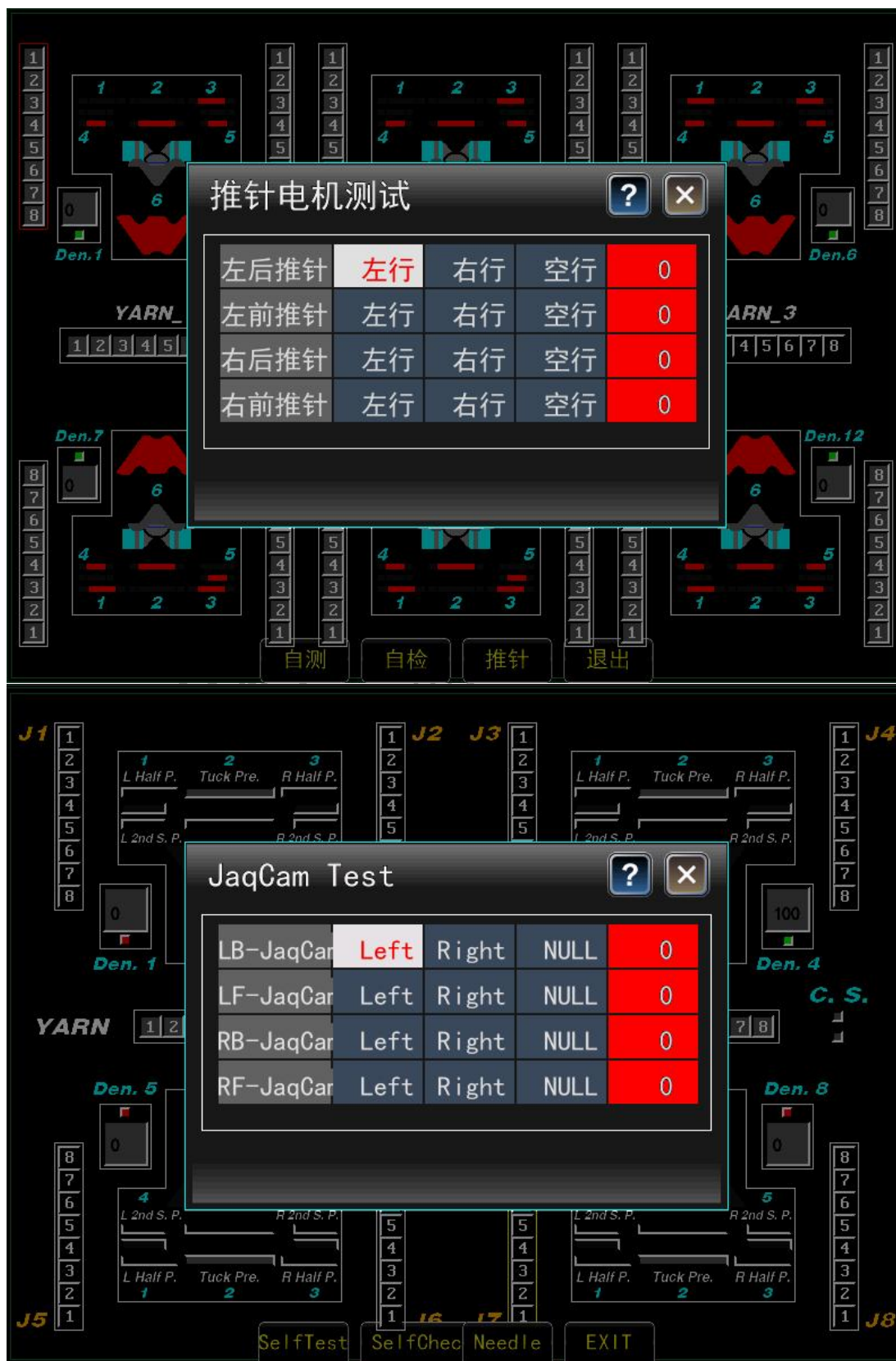
### 推针电机控制缺点

#### Needle pushing motor control disadvantages

国内受制于成本因素考虑，推针电机的工作速度普遍不快，在机头往复采用高速高效运行中因结构等造成推针电机可能出现没有及时到位而影响 A 位编织针而不得不增加回转距离规避。

Due to the cost limitation, the working speed of the needle pushing motor is generally not fast in China. During efficient and high speed operation at the carrier, the needle pushing motor may be not in place in a timely manner due to structure and other reasons, which may influence the knitting needle at the selector raising cam. To solve this problem, longer rotation distance is required.





## 4.11 起底板相关参数

### STB Parameters

#### 1.起底板挂布方式

##### Start needle(Cloth hanging method of the pull board)

设置复合针类型穿线板结构的挂布方式，需根据复合针的间距与机号间距进行配对选择，其最终目的是复合针能尽量多的钩住前后弹力编织形成的交叉点，保证可靠的牵拉拉力。

Set the hanging method of the threading board structure of composite needle type. It is necessary to pair and select according to the spacing between the composite needles and the machine number. The ultimate goal is that the composite needles can hook the intersection points formed by the front and back elastic knitting as much as possible and ensure reliable draw-off tension.

#### 2.挂布摇床使能

##### Rack enable(Enable cloth hanging and rocking)

切换选择：打开/关闭

Switch between: Enabled / disabled

适用于复合针类型结构的穿线板，首行弹力纱编织前摇床处于针对针位置 (0\*)，前后线圈连线呈等腰三角形，等起底板挂布至安全位后摇床再恢复初始位置。

This is suitable for threading boards with the composite needle structure. Before knitting the first row of elastic yarn, the rocking is at the needle-to-needle position (0\*), and the connection between the front and back circles is an isosceles triangle. After hanging the pull board to the safety position, the rocking will resume to its initial position.

#### 3.挂布有效针数

##### Comb needle(Valid needles for cloth hanging)

范围：2\*E- 200 (针)

Scope: 2\*E- 200 (needles)

根据经验设置，最小为 2 英寸针数。

As a rule of thumb, the minimum number of stitches is 2 inches.

E7: 7\*2=14 (针)

E7: 7\*2=14 (needles)

E12: 12\*2=24 (针)

E12: 12\*2=24 (needles)

夹子夹纱位置一般是低于针板头口线、纱嘴出线口，因此纱嘴纱进随着针位置距离变大，纱线与夹线固定点所呈角度将不断呈线性变化，当起针点超过一定位置后织针将无法正常垫纱而吃不到线。

The yarn clamping position is generally lower than the needle plate mouth wire and the outlet of the yarn

feeder. Therefore, as the needle position distance increases, the angle between the yarn and the fixed point of clamping will change linearly. When the needle starting point exceeds a certain position, the knitting needle will not be able to pad the yarn normally and cannot hook the thread.

挂布有效针数阈值需根据机器实际安装状况进行合理设置。

The threshold of valid needles for cloth hanging should be set reasonably according to the actual installation status.

\* 挂布有效针数测量方式:

\* Measurement of valid needles for cloth hanging:

夹线状态下手动移动纱嘴进入针板首、末针一段距离后停止, 手动从针板一侧逐渐测试最远的一颗编织能正常垫纱的针。

Under the clamping condition, manually move the yarn feeder into the first and last needles of the needle plate for a certain distance and then stop, and gradually test the furthest needle that can pad the yarn normally during knitting from the side of the needle plate manually.

挂布有效针数作用: 当起针点大于此设定阈值后, 因纱进将无法正常垫纱系统将自动插入预勾编织的形式完成可靠垫纱。

Function of valid needles for cloth hanging: when the needle starting point is greater than the set threshold, the system will automatically insert the pre-hook knitting for reliable yarn padding, as the yarn cannot be padded normally in the yarn in process.

挂布有效针数取左、右纱嘴最大针数。

Valid needles for cloth hanging shall be subject to the maximum needles of the left and right yarn feeders.

## 4. 落布度目

### Drop STI(Cloth dropping stitch)

范围: 0 - 500

Scope: 0 - 500

选择自动踢纱嘴+卸片、自动卸片操作时的度目值。

Select the stitch value during automatic yarn feeder kicking + unloading and automatic unloading.

**备注:**

**Note:**

入口路径: 放大镜-自动踢纱嘴+卸片、自动卸片

Entry path: Magnifying glass - Automatic yarn feeder kicking + unloading, and automatic unloading

## 5. 卸片罗拉

### Autodrop Roll(Unloading roller)

起底板花型编织到结束行标记、罗拉机花型程序接管卸片行结束后, 机头停止在左纱出位置, 为防止织物未完全脱落主卷布将继续转动若干时间辅助落布。

编纂: 浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

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Shen Guolong, Kuang Yue, Wang Yupeng

When the pull board pattern is knitted to the end row marking and the roller pattern program takes over unloading, the carrier will stop at the left yarn out position. In order to prevent the fabric from falling off completely, the main rolling cloth will continue to rotate for a period of time to facilitate doffing.

辅助落布设置参数由落布罗拉转动时间、卸片罗拉等 2 个参数控制。

The auxiliary doffing setting parameter is controlled by 2 parameters: the doffing roller running time, and the unloading roller.

## 6. 纱出速度

### Yarn out spd

范围: 10 - 100

Scope: 10 - 100

设定纱嘴纱出指令时机头完成当前段正常编织后的速度，其作用是防止当前段速度过快直接纱出时纱嘴停放位置偏移，同时通过一个适当的纱出减速过程便于可靠的纱嘴停放位置。

Set the speed after the carrier finishes the current segment of knitting when the yarn feeder sends yarn out instructions. The function is to prevent the yarn feeder's stopping position from offsetting during direct yarn out if the current section speed is too fast. In addition, a reliable yarn feeder's stopping position is selected through an appropriate yarn out deceleration process.

- 当前行速度大于纱出设置速度时，机头将在出针板有效幅宽时减速至设定速度。  
When the current row speed is greater than the set yarn out speed, the carrier will decelerate to the set speed at the effective width of the needle plate.
- 当前行速度小于纱出设置速度时，按机头编织速度。  
When the current row speed is less than the set yarn out speed, the carrier's knitting speed is used.

## 7. 左纱出位置

### Yarn L Bound(Left yarn out position)

范围: -150 - 999

Scope: -150 - 999

设定左行左纱出时的针位置，该位置是机头携带纱嘴左纱出后最大的换向点位置。

Set the needle position of the left row during left yarn out, which is the maximum direction conversion position after the carrier carries a yarn feeder for left yarn out.

## 8. 右纱出位置

### Yarn R Bound(Right yarn out position)

范围: 1 - 9999 (针)

Scope: 1 - 9999 (needles)

设定右行右纱出位置，该位置是机头携带纱嘴右纱出后的最大的换向点位置。

Set the needle position of the right row during right yarn out, which is the maximum direction conversion

position after the carrier carries a yarn feeder for right yarn out.

**备注:**

**Note:**

左、右纱出位置一般以机头左、右限位参照往针板内测平移若干针。

In general, the left and right yarn out positions are the positions by horizontal shift of several needles towards the inner part of needle board with the left and right endpoints of the carrier as the benchmark.

## 9.罗拉打开修正

### Roller Open(Enable amendment in roller)

范围: 0 - 500

Scope: 0 - 500

设定步进主罗拉打开至罗拉开传感器信号后以原点做基准的修正。

Set the amendment using the original point as the benchmark after the step main-roller enables the roller-enabled sensor signal.

当主罗拉开至罗拉开传感器信号后发现起底板上升穿线板与罗拉皮仍有干涉，通过反向位置修正保证起底板上升时不干涉主罗拉皮。

When the main-roller enables the roller-enabled sensor signal, if any interference between the threading board with the roller skin is found when lifting the pull board, make amendment in the reverse position to ensure that there is no interference with the main-roller skin when lifting the pull board.

**备注:**

**Note:**

本设置项只用于步进主罗拉安装有罗拉开传感器的结构。

This setting option is applicable for a step main-roller installed with a roller-enabled sensor.







选择横机是否启用局域网联网功能。

Enable or disable LAN networking function for the flat knitting machine.

切换型选择：关闭 / 打开

For switching models, select: Disabled/enabled

网络开关：打开

Network switch Enabled

启用局域网联网后的横机可以通过联网控制中心电脑进行不同横机的花型下发，产量统计、故障信息分类汇总统计、系统中全部花型的工作参数备份至中心电脑等。

Patterns may be issued to LAN networked flat knitting machines via the networked computer of the control center. Output statistics, fault information classification and summary statistics, and all the working parameters of patterns in the system are backed up to the central computer.

## 2. 本机 IP

### Local IP

当前联网横机的 IP 地址设置。

Set IP address of the current networked flat knitting machine.





输入局域网私有 IP 地址时如点分地址小于 3 位，输入时请用‘0’补全或者用软键盘的左、右移方向键至需要输入的位置。

If the dot-separated address is less than 3 segments when entering the LAN private IP address, enter ‘0’ to complete the value or use the left or right arrow key of the soft keyboard to move to the desired position.

### ● IP 地址简述 (以下内容摘自百度百科)

#### Description of IP address (extracted from Baidu Baike)

IP 地址 (Internet Protocol Address) 是指互联网协议地址，又译为网际协议地址。

IP Address (Internet Protocol Address) refers to the Internet protocol address, or the network protocol address.

IP 地址是 IP 协议提供了一种统一的地址格式，它为互联网上的每一个网络和每一台主机分配一个逻辑地址，以此来屏蔽物理地址的差异。

IP address is a unified address format provided by IP protocol. It assigns a logical address to each network and host on the Internet to shield the difference of physical address.

IP 地址是一个 32 位的二进制数，通常被分割为 4 个“8 位二进制数” (也就是 4 个字节)。IP 地址通

常用“点分十进制”表示成 (a.b.c.d) 的形式，其中，a,b,c,d 都是 0~255 之间的十进制整数。

An IP address is a 32-bit binary number, usually split into four “8-bit binaries” (that is, four bytes). IP addresses are usually expressed in “dotted decimal” form (a.b.c.d), where a, b, c, and d are decimal integers between 0 and 255.

例：点分十进 IP 地址 (100.4.5.6) ，实际上是 32 位二进制数

Example: the dotted decimal IP address (100.4.5.6) is actually a 32-bit binary number

(01100100.00000100.00000101.00000110) 。  
(01100100.00000100.00000101.00000110).

### ● 私有地址

#### Private address

私有地址 (Private address) 属于非注册地址，专门为组织机构内部使用。

The private address is an unregistered address for internal use in an organization.

以下列出留用的内部私有地址

The reserved internal private addresses are listed below

A 类 10.0.0.0--10.255.255.255

Category A 10.0.0.0 - 10.255.255.255

B 类 172.16.0.0--172.31.255.255

Category B 172.16.0.0--172.31.255.255

C 类 192.168.0.0--192.168.255.255

Category C 192.168.0.0--192.168.255.255

## 3. 子网掩码

### Mask

设定当前机器联网时的子网掩码。

Set the subnet mask of the current machine when networking.

子网掩码(subnet mask)又叫网络掩码、地址掩码、子网络遮罩，它用来指明一个 IP 地址的哪些位标识的是主机所在的子网，以及哪些位标识的是主机的位掩码。子网掩码不能单独存在，它必须结合 IP 地址一起使用。

The subnet mask, also known as the network mask, address mask, or sub-network mask, is used to indicate which bits of an IP address identify the subnet on which the host is located, and which bits identify the host's bit mask. The subnet mask cannot stand alone and must be used in conjunction with the IP address.

子网掩码是一个 32 位地址，用于屏蔽 IP 地址的一部分以区别网络标识和主机标识，并说明该 IP 地址是在局域网，还是在广域网上。

The subnet mask is a 32-bit address that masks a portion of an IP address to distinguish the network identity from the host identity and to indicate whether the IP address is on a LAN or a WAN.



## 4. 网关设置

### Net Gate Setup

当前机器联网时的网关设置。

Set the gateway of the current machine when networking.

网关(Gateway)又称网间连接器、协议转换器。网关在网络层以上实现网络互连，是复杂的网络互连设备，仅用于两个高层协议不同的网络互连。网关既可以用于广域网互连，也可以用于局域网互连。网关是一种充当转换重任的计算机系统或设备。使用在不同的通信协议、数据格式或语言，甚至体系结构完全不同的两种系统之间，网关是一个翻译器。与网桥只是简单地传达信息不同，网关对收到的信息要重新打包，以适应目的系统的需求。同层--应用层。

Gateway, also known as inter-network connector or protocol converter, is a complex network interconnection device that realizes network interconnection above the network layer and is only used for interconnection of two networks with different high-layer protocols. The gateway can be used for both WAN and LAN interconnection. The gateway is a computer system or device that acts as a converter. Used between different communication protocols, data formats or languages, or even two systems with completely different architectures, a gateway is a translator. Unlike a network bridge that simply conveys information, a gateway repackages the information it receives so as to meet the needs of the destination system. Same layer - application layer.

## 5. 服务器 IP

### Server IP

设定当前机器连接的网络服务器的 IP 地址

Set the IP address of the network server to which the machine is currently connected.

## 6. 端口号

### Port

设定当前机器在监控设备中显示的端口号。

Set the port number of the current machine displayed in the monitoring device.

## 4.13 功能按键

### Function button

#### 1. 备份

##### Back up

将系统参数备份保存在‘FLASH’中以便系统参数出现问题时，通过 4-系统参数->其他->系统参数初始化恢复保存时的参数，建议同时备份至‘U’盘等外部存储介质中。

Back up and save system parameters in “FLASH”, so as to restore them through 4- System parameters -> Other -> System parameters initialization when system parameters are faulty. You are advised to back up the

system parameters to an external storage medium such as the USB flash drive.

## 2. 左行

### Move to the left

机头向左移动。

Move the carrier to the left.

备注：

Note:

灰色图标显示下长按此倒计时 3 秒键后，弹出‘是否确认要移动机头？’确认窗口，点击确认解锁。

Long press the 3s countdown button under the gray icon display, and the “Do you want to move the carrier?” will pop up. Confirm the window by clicking the OK button.

该操作一般用于新机调试系统参数如同步带齿距校正时连续、点动移动机头至初步位置，减轻手动移动大质量机头的用力情况。

This operation is generally used for debugging of system parameters of new machines, such as continuous and inching movement of the carrier to the preliminary position during synchronous belt pitch correction, and reducing the force of manually moving large mass carrier.

## 3. 右行

### Move to the right

机头向右运行。

Move the carrier to the right.

操作同上。

Operation steps are same as above.

## 4.14 其他

### Others

其他类别的系统参数修正、设置等。

Other kinds of system parameter correction, setting, etc.



## 1. 摇床位置修正

### Rack Position Amend

前、后针板相对位置差异所作的系统修正。

Systematic correction for the difference in the relative position of the front and rear needle plates.

单位：脉冲

Unit: Pulse





## ● 操作步骤

### Operation steps

根据系统参数设定 -> 横机壹英寸针数设定, 将摇床的实际针位移数值与理论值进行对比 (误差大小、方向), 如误差超过允许范围, 则运用 '+/-' 对其进行修正。

According to the system parameter setting -> setting of one-inch needle number of flat knitting machine, compare the actual needle displacement value of the rock with the theoretical value (error size, direction). If the error exceeds the allowable range, press the '+/-' to correct it.

备注:

Note:

进入摇床位置修正窗口, 光标默认停留在 'R00\*' 上。

The cursor rests on 'R00\*' by default on the rock position correction window.

安全起见, 摇床针位置移动需要在最后按确认后执行, 防止当前编织行进入后误单击其他摇床针数修正后位移所产生的风险。

For safety, movement of the rock needle position requires a final confirmation before formal execution, to prevent risks of displacement due to mis-clicking to correct the number of needles for other rock upon entry of the current knitting row.

1. 查看、测试、修正等有进入前摇床位置记忆, 退出后自动恢复之前的摇床位置。

The view, test or correction operation involves memory of the rock position. Position of the previous

rock will be restored automatically upon exiting of the operation.

2. 摇床针位置的前置符号‘L、R’表示是以前摇床做基准的方向，如果是后摇床则移动方向反。

The symbol ‘L, R’ in front of the rock needle position indicates the movement direction based on the front rock, and such direction is opposite for the rear rock.

摇床位置-前床 Rock position - front needle bed	摇床位置-后床 Rock position - rear needle bed
R: 右移 Right movement	左移 Left movement
L: 左移 Left movement	右移 Right movement

机器配置查询中的摇床位移量 S1 (毫米/单位脉冲)，即摇床伺服电机发出一个脉冲指令后摇床机构驱动针板所移动的距离。

Rock displacement S1 (mm/unit pulse) queried in the machine configuration, namely the distance to which the rock mechanism drives the needle plate after the rock servo motor sends a pulse command.

$$S1 = T \times (Z1 \div Z2) \div 1000$$

T: 摇床丝杆节距

T: Rock screw rod pitch

Z1: 摇床主动轮齿数

Z1: number of driving gear teeth of the rock

Z2: 摇床从动轮齿数

Z2: number of driven gear teeth of the rock

摇床针位置移动量 S2 (脉冲数/单位针)

Rock needle position displacement S2 (pulse number/unit needle)

$$S2 = (25.4 \div E) \div S1$$

E: 机号 (摇床壹英寸针数)

E: Machine number (number of rock one-inch needles)

S1: 摇床位移量

S1: rock displacement





## 2. 翻针 (T) 摇床位置修正

### Rack(T) Position Amend

翻针 (T) 位摇床位置的修正。

Correct the rock position during needle reversing (T).

单位: 脉冲

Unit: Pulse

操作同上。

Operation steps are same as above.

## 3. 翻针 (+) 摇床位置修正

### Rack(+) Position Amend

同翻针 (T) 。

The same as needle reversing (T).

## 4. 翻针 (-) 摇床位置修正

### Rack(-) Position Amend

同翻针 (T) 。

The same as needle reversing (T).

## 5. 度目修正设置

### Stitch Setup

路径: 4-系统参数 -> 其他 -> 度目修正设置

Path: 4 - System parameters -> Others -> Stitch correction setting

范围:  $\pm 100$  (脉冲)

Scope:  $\pm 100$  (pulse)

- 度目修正的目的是为了保证同段编织行工作度目的成圈密度保持一致, 也就是同段、同组织的单位线圈展开长度必须一致。

The purpose of stitch correction is to ensure consistent loop density for the working stitch in the same section of the knitting row, that is, the unwrapping length of the unit loop in the same section and organization must be consistent.

- 每个度目电机总成在安装时因零位传感器、凸轮连杆机构等位置以及整体安装在机头天桥上与导轨、针板头口线等累积误差需要进行逐步、细致的修正防止所谓的密度花等坯布质量问题。

Each stitch motor assembly needs to be gradually and carefully corrected during installation due to the position of the zero position sensor and cam control connecting rod, as well as the accumulated errors with the guide rail and needle plate mouth wire as it is installed on the carrier overpass as a whole, so as to prevent gray fabric quality problems such as the so-called inconsistent loop size.

- 第 1 列 (竖) : 组织<sup>1</sup>类型

Column 1 (vertical): organization<sup>1</sup> type

- 第 1 行 (横) : 度目电机工作序号, 4 个/标准系统, 2 系统 8 个, 3 系统 12 个, 4 系统 16 个等。

Row 1 (horizontal): working serial number of stitch motor, 4 / standard system, 8 / 2-system, 12 / 3-system, 16 / 4-system.

特殊山板: E3 机型、双层度目款等, 2 个/系统。

Special knitting plate: E3 model, dual-layer stitch type, 2 / system.

- 左行, 偶数号电机参与成圈

Move to the left: even numbered motors participate in the looping

- 右行: 单数号电机参与成圈

Move to the right: odd numbered motors participate in the looping

- 正值, 度目变大

Positive value: increasing stitch

- 负值, 度目变小

Negative value: decreasing stitch

- 单面度目修正

Single jersey stitch correction

单面<sup>2</sup>编织时的前、后度目位置修正。

Front and rear stitch position correction during single jersey<sup>2</sup> knitting.

备注:

Note:

1. 单面、三平、四平、提花、罗纹空气层、移圈、嵌花、衬纬等。

Single jersey, three plain stitches, four plain stitches, jacquard, Milano rib, stitch transfer, intarsia, weft insertion, etc.

2. 单面, 指的是在相对零位修正时前、后针板一侧连续色号的组织。

Single jersey refers to the stitch with continuous color numbers on the front and back needle plates during correction of relative zero position.

色号 Color number	组织 Stitch	修正类型 Correction type
1	前床编织 (有翻针动作) Front needle bed knitting (with needle	单面 Single jersey

	reversing)	
2	后床编织 (有翻针动作) Rear needle bed knitting (with needle reversing)	单面 Single jersey
8	前床编织 (无连接) Front needle bed knitting (without connection)	单面 Single jersey
9	后床编织 (无连接) Rear needle bed knitting (without connection)	单面 Single jersey
3	前后床编织 (总针编织) Front and rear needle bed knitting (total stitch knitting)	四平 Four plain stitches
10	前后床编织 (无连接) Front and rear needle bed knitting (without connection)	四平 Four plain stitches

- 四平度目修正

Four plain stitches correction

前、后满针组织编织时密度马达相对零位位置修正。

Relative zero position correction of density motor during knitting of front and rear full-needle stitches.

- 可变量目修正

Variable stitch correction

可变量目段编织时前、后密度马达位置修正。

Position correction of front and rear density motors during knitting in the variable stitch section.

此参数设置用于新机安装调试、长期运行后度目控制机构磨损等情况，修正编织系统中各个度目之间至工作段度目值出现的差异现象。

This parameter setting applies to the installation and commissioning of new machines, wearing of the stitch control mechanism after long term running, and correction of the difference of stitches in the knitting system and in the working section.

## 6. 伺服参数设置

### Servo Para Setup

## 7. 起底板设置

### Comb Setup

常规入口：系统参数-其他-起底板设置

Conventional entrance: System parameters - Others - Pull board settings

该界面主要用于设置起底板相关的参数设置、修改、测试等。

This interface is mainly used for the setting, modification and testing of parameters related to the pull board.

## 7.1 起底板相关参数

### STB Parameters

- **起底板挂布方式**

#### Start needle(Cloth hanging method of the pull board)

设置复合针类型穿线板结构的挂布方式，需根据复合针的间距与机号间距进行配对选择，其最终目的是复合针能尽量多的钩住前后弹力编织形成的交叉点，保证可靠的牵拉拉力。

Set the hanging method of the threading board structure of composite needle type. It is necessary to pair and select according to the spacing between the composite needles and the machine number. The ultimate goal is that the composite needles can hook the intersection points formed by the front and back elastic knitting as much as possible and ensure reliable draw-off tension.

- **挂布摇床使能**

#### Rack enable(Enable cloth hanging and rocking)

切换选择：打开/关闭

Switch between: Enabled / disabled

适用于复合针类型结构的穿线板，首行弹力纱编织前摇床处于针对针位置 (0\*)，前后线圈连线呈等腰三角形，等起底板挂布至安全位后摇床再恢复初始位置。

This is suitable for threading boards with the composite needle structure. Before knitting the first row of elastic yarn, the rocking is at the needle-to-needle position (0\*), and the connection between the front and back circles is an isosceles triangle. After hanging the pull board to the safety position, the rocking will resume to its initial position.

- **挂布有效针数**

#### Comb needle(Valid needles for cloth hanging)

范围：2\*E- 200 (针)

Scope: 2\*E- 200 (needles)

根据经验设置，最小为 2 英寸针数。

As a rule of thumb, the minimum number of stitches is 2 inches.

E7: 7\*2=14 (针)

E7: 7\*2=14 (needles)

E12: 12\*2=24 (针)

E12: 12\*2=24 (needles)

夹子夹纱位置一般是低于针板头口线、纱嘴出线口，因此纱嘴纱进随着针位置距离变大，纱线与夹线固定点所呈角度将不断呈线性变化，当起针点超过一定位置后织针将无法正常垫纱而吃不到线。

The yarn clamping position is generally lower than the needle plate mouth wire and the outlet of the yarn feeder. Therefore, as the needle position distance increases, the angle between the yarn and the fixed point of

clamping will change linearly. When the needle starting point exceeds a certain position, the knitting needle will not be able to pad the yarn normally and cannot hook the thread.

挂布有效针数阈值需根据机器实际安装状况进行合理设置。

The threshold of valid needles for cloth hanging should be set reasonably according to the actual installation status.

\* 挂布有效针数测量方式:

\* Measurement of valid needles for cloth hanging:

夹线状态下手动移动纱嘴进入针板首、末针一段距离后停止，手动从针板一侧逐渐测试最远的一颗编织能正常垫纱的针。

Under the clamping condition, manually move the yarn feeder into the first and last needles of the needle plate for a certain distance and then stop, and gradually test the furthest needle that can pad the yarn normally during knitting from the side of the needle plate manually.

挂布有效针数作用：当起针点大于此设定阈值后，因纱进将无法正常垫纱系统将自动插入预勾编织的形式完成可靠垫纱。

Function of valid needles for cloth hanging: when the needle starting point is greater than the set threshold, the system will automatically insert the pre-hook knitting for reliable yarn padding, as the yarn cannot be padded normally in the yarn in process.

挂布有效针数取左、右纱嘴最大针数。

Valid needles for cloth hanging shall be subject to the maximum needles of the left and right yarn feeders.

#### ● 落布度目

##### Drop STI(Cloth dropping stitch)

范围：0 - 500

Scope: 0 - 500

选择自动踢纱嘴+卸片、自动卸片操作时的度目值。

Select the stitch value during automatic yarn feeder kicking + unloading and automatic unloading.

#### 备注:

Note:

入口路径：放大镜-自动踢纱嘴+卸片、自动卸片

Entry path: Magnifying glass - Automatic yarn feeder kicking + unloading, and automatic unloading

#### ● 卸片罗拉

##### Autodrop Roll(Unloading roller)

起底板花型编织到结束行标记、罗拉机花型程序接管卸片行结束后，机头停止在左纱出位置，为防止织物未完全脱落主卷布将继续转动若干时间辅助落布。

When the pull board pattern is knitted to the end row marking and the roller pattern program takes over unloading, the carrier will stop at the left yarn out position. In order to prevent the fabric from falling off



completely, the main rolling cloth will continue to rotate for a period of time to facilitate doffing.

辅助落布设置参数由落布罗拉转动时间、卸片罗拉等 2 个参数控制。

The auxiliary doffing setting parameter is controlled by 2 parameters: the doffing roller running time, and the unloading roller.

- **纱出速度**

**Yarn out spd**

范围: 10 - 100

Scope: 10 - 100

设定纱嘴纱出指令时机头完成当前段正常编织后的速度，其作用是防止当前段速度过快直接纱出时纱嘴停放位置偏移，同时通过一个适当的纱出减速过程便于可靠的纱嘴停放位置。

Set the speed after the carrier finishes the current segment of knitting when the yarn feeder sends yarn out instructions. The function is to prevent the yarn feeder's stopping position from offsetting during direct yarn out if the current section speed is too fast. In addition, a reliable yarn feeder's stopping position is selected through an appropriate yarn out deceleration process.

- 当前行速度大于纱出设置速度时，机头将在出针板有效幅宽时减速至设定速度。

When the current row speed is greater than the set yarn out speed, the carrier will decelerate to the set speed at the effective width of the needle plate.

- 当前行速度小于纱出设置速度时，按机头编织速度。

When the current row speed is less than the set yarn out speed, the carrier's knitting speed is used.

- **左纱出位置**

**Yarn L Bound(Left yarn out position)**

范围: -150 - 999

Scope: -150 - 999

设定左行左纱出时的针位置，该位置是机头携带纱嘴左纱出后最大的换向点位置。

Set the needle position of the left row during left yarn out, which is the maximum direction conversion position after the carrier carries a yarn feeder for left yarn out.

- **右纱出位置**

**Yarn R Bound(Right yarn out position)**

范围: 1 - 9999 (针)

Scope: 1 - 9999 (needles)

设定右行右纱出位置，该位置是机头携带纱嘴右纱出后的最大的换向点位置。

Set the needle position of the right row during right yarn out, which is the maximum direction conversion position after the carrier carries a yarn feeder for right yarn out.

**备注:**

**Note:**

左、右纱出位置一般以机头左、右限位参照往针板内测平移若干针。

In general, the left and right yarn out positions are the positions by horizontal shift of several needles towards the inner part of needle board with the left and right endpoints of the carrier as the benchmark.

- **罗拉打开修正**

**Roller Open(Enable amendment in roller)**

范围: 0 - 500

Scope: 0 - 500

设定步进主罗拉打开至罗拉开传感器信号后以原点做基准的修正。

Set the amendment using the original point as the benchmark after the step main-roller enables the roller-enabled sensor signal.

当主罗拉开至罗拉开传感器信号后发现起底板上升穿线板与罗拉皮仍有干涉，通过反向位置修正保证起底板上升时不干涉主罗拉皮。

When the main-roller enables the roller-enabled sensor signal, if any interference between the threading board with the roller skin is found when lifting the pull board, make amendment in the reverse position to ensure that there is no interference with the main-roller skin when lifting the pull board.

**备注:**

**Note:**

本设置项只用于步进主罗拉安装有罗拉开传感器的结构。

This setting option is applicable for a step main-roller installed with a roller-enabled sensor.

- **拉力信号检测使能**

**P.C Enabled(Enable tension signal detection)**

钢丝起底板穿线板带有弹簧辅助拉力机构的信号检测使能的开、关设置。

Set the enabling and disabling of signal detection when the wire pull board's threading board comes with a spring-assisted tension mechanism.

弹簧辅助工作机制:

Spring-assisted working mechanism:

当起底板卷布牵拉因某种原因受阻后未继续往下位移，此时穿线板与升降电机固定连接侧开始压缩与牵拉织物的活动侧弹簧产生相对位移，拉力检测传感器信号状态发生变化后程序根据拉力信号检测行数中设置行进行预制规则执行。

When the draw-off of the pull board batching is blocked for some reasons and cannot continue to move down, the fixed connection side of the threading board and the lifting motor starts to compress and generates relative displacement with the spring on the movable side of the draw-off fabric. After the signal state of the tension detection sensor changes, the program is executed according to the preset rules in the number of tension signal detection rows.

弹簧辅助牵拉对于刚性牵拉机构而言可以在一定范围内保护织物牵拉破洞问题，因为挂布活动牵拉

梳板在牵拉下移受阻后两侧的弹簧辅助力将作用于织物上，一定程序的可以防止浮片现象。

For the rigid draw-off mechanism, spring-assisted draw-off can avoid fabric holes due to draw-off to some extent because after the draw-off comb's downward movement is blocked by cloth hanging, the auxiliary force of springs on both sides will be applied on the fabrics, which can prevent floating to some extent.

- 规则判断：  
Rules determinations:

拉力检测传感器信号状态发生变化持续中，压缩弹簧牵拉编织行数大于设定行数后，机头、起底板牵拉停车弹出报警，此时需人工干预起底板牵拉问题。

With constant change of the signal state of the tension detection sensor, after the number of knitting rows pulled by the compression spring is greater than the set number of rows, the carrier and the pull board will stop and give alarms. At this point, it is necessary to manually intervene the pull board's draw-off issue.

人工干预成功拉力检测信号状态将再次变化至正常后，编织牵拉将继续进行。

After manual intervention succeeds, the state of draw-off tension detection signal will change to normal again, and knitting draw-off will continue.

- **拉力信号检测行数**  
**P.C Pages(Number of tension signal detection rows)**

弹簧辅助拉力信号状态变化后的检测行数阈值设置，拉力信号检测使能-打开后根据此设置行进行报警提示触发依据。

Set the number of tension signal detection row thresholds after the spring-assisted tension signal state changes. After "Enable Tension Signal Detection" is enabled, this setting row will serve as the trigger basis for alarm.

## 7.2 升降电机相关参数

### STB Motor Parameters

- **起底板挂布报警行数**  
**Takedown Alarm Rows(Number of alarm rows for cloth hanging of pull board)**

过滤起底板挂布编织行间编码器最小变化量检测开启的报警行数。

Filter the number of alarm rows when the minimum variation detection is enabled in the encoder between the cloth hanging and knitting rows of pull board.

起底板花型有纱嘴引入进行局部压纱编织的若干行，其牵拉位移很小容易引起报警提示。

For the rows when a yarn feeder is introduced in the pull board pattern for local chopping and knitting, it is likely to prompt alarm due to small draw-off displacement.

复合针、穿线钢丝均适用。

This is applicable for the composite needle and threading wire.

- **起底板复位下降力矩**  
**Reset Down force(Torque when resetting and lowering the pull board)**

范围: 0 - 100

Scope: 0 - 100

起底板复位时到零位传感器过程中的力矩大、小设定。

Set the torque when resetting the pull board to the zero position sensor.

**备注:**

**Note:**

复位下降过程中需克服起底板安全门的结构阻力同时需实现柔顺、低噪的安全门关闭, 请合理设置该参数以及最佳下刹车位置, 到下刹车位置会进行短暂停留然后再继续至零位传感器位置。

During resetting and lowering process, it is necessary to overcome the structural resistance of the pull board's safety door while closing the safety door smoothly with less noise. Please set this parameter and the best lower brake position reasonably. When the pull board reaches the lower brake position, it will stop for a short time and then continue to go to the zero position sensor position.

该值设置过小也会出现起底板复位延长及未克服安全门结构阻力无法到达零位传感器位置后失败报警。

If the value is set too small, the pull board resetting will be prolonged and a failure alarm will be reported because the pull board cannot reach the zero position sensor position as the structural resistance of the safety door cannot be overcome.

- **起底板复位上升力矩**

**Reset Up Force(Torque when resetting and lifting the pull board)**

范围: 0 - 100

Scope: 0 - 100

起底板从零位传感器位置复位上升过程设定的力矩大小。

Set the torque when resetting and lifting the pull board to the zero position sensor position.

**备注:**

**Note:**

上升过程中需克服起底板安全门的结构阻力同时需实现柔顺、低噪的安全门打开, 请合理设置改参数以及最佳上刹车位置, 上升时从零位到达上刹车位置会进行短暂停留然后再继续上升。

During lifting process, it is necessary to overcome the structural resistance of the pull board's safety door while closing the safety door smoothly with less noise. Please set this parameter and the best upper brake position reasonably. When the pull board reaches the upper brake position from the zero position during lifting, it will stop for a short time and then continue to lift.

- **勾线初始力矩**

**Yarn Hock Force(Initial torque of thread hooking)**

范围: 0~100

Scope: 0~100

设定钢丝勾线牵拉时的力矩（由最高位到安全位的力矩）

Set the torque when drawing off the wire for hooking (torque from the highest position to the safety position).

**备注:**

**Note:**

请合理设置参数，设定太小会导致无法将织物拉下，设定太大会拉断橡筋。

Please set this parameter reasonably. If the setting value is too small, the fabric cannot be pulled down. If the setting value is too great, the rubber band will be broken.

- **勾线力矩加速**

**Yarn Hock Force Acc(Thread hooking torque acceleration)**

范围: 0~100

Scope: 0~100

设定起底板挂布时，从最高位到安全位的加速度。

Set the acceleration from the highest position to the safety position when setting the cloth hanging for the pull board.

- **安全位上升力矩**

**Safety Pos Up Force(Lifting torque in safety position)**

范围: 0~100

Scope: 0~100

设定起底板由安全位至最高位之间的上升力矩。

Set the lifting torque between the safety position and the highest position of the pull board.

- **编码器最小变化量**

**Enc-Check Minimum(Minimum variation of encoder)**

设置起底板编织浮片的编码器最小变化量检测依据。

Set the detection basis for minimum variation of encoder for knitting floating piece on the pull board.

连续 2 行有小于该设定参数后弹出报警提示 ‘起底板拉力失效’，防止浮片撞针等，出现报警提示后请人工干预检查拉力大小设置是否恰当，是否可以继续编织等。

When 2 consecutive rows are less than the set parameters, an alarm prompts that “Pull board tension failure” to prevent floating piece from hitting the needle. After the alarm prompt appears, please manually intervene to check whether the set tension is appropriate and whether knitting can be continued.

**过滤排除:**

**Filter exclusion:**

空行/翻、接针/纱嘴空踢/程序自动插入行等。

Empty row / transfer, needle connection / empty kick of yarn feeder / automatic insertion of rows by program, etc.

- **编码器最大变化量**

**Enc-Check Maximum(Maximum variation of encoder)**

设置起底板牵拉往下位移的编码器最大变化量。

Set the maximum variation of encoder when drawing off the pull board downward.

目的是防止牵拉力过大、织物破洞等造成起底板快速下降，编织行间的下降位移量大于设定值将提供报警提示‘起底板下落过快，是否需要复位？’，单击确定后启动拉杆机器将自动进入复位流程，选择‘否’则启动拉杆继续可以编织。

The purpose is to prevent the rapid drop of the pull board caused by excessive tension and fabric holes. If the drop displacement between knitting rows is greater than the set value, an alarm will prompt that: ‘The pull board falls too fast. Do you need to reset it?’. After clicking OK, the pull rod starting machine will automatically enter the reset process. After selecting ‘No’, the pull rod starting machine can continue knitting.



报警提示后需要手动选择屏幕进行选择，禁用拉杆停车信号取消机制。

After the alarm prompt, it is required to select the screen manually. It is prohibited to use the pull rod stopping signal to cancel the mechanism.

- **检测范围：起底板挂布开始行-起底板脱圈行之间。**

Detection range: from the cloth-hanging start row on the pull board to the knocking-over row of the pull board.

- **检测点：机头换向点。**

Detection point: carrier direction conversion point.

起底板空车测试中幅宽较小编织速度较快时容易触发该报警机制。

It is easy to trigger this alarm mechanism when the width is small and the knitting speed is fast in the idle test of the pull board.

- **起底板最大力矩**

**Comb Maximum Force(Maximum torque of the pull board)**

范围：70~95

Scope: 70~95

设定起底板最大力矩用以限制其他设定力矩太大。设置最大力矩后，若有其他力矩值填写大于最大力矩值，则其他力矩值将不生效。

Set the maximum torque of the pull board to limit other settings to avoid too large torque. After setting the maximum torque, if other torque values are greater than the maximum torque value, the other torque values will not take effect.

- **起底板零拉力行数**

**Comb Free Rows(Number of rows with zero tension detection on the pull board)**

范围：0 - 30



Scope: 0 - 30

设定起底板零拉力检测过滤行数，此设置前的行数将关闭检测。

Set the number of filter rows for zero tension detection on the pull board, and the rows prior to this setting will not available for detection.

该设置项主要是为了开始编织的若干行中有程序自动插入行，实际编织行不多而引起所谓的假报警。  
This setting option is mainly to automatically insert rows with program in several rows when the knitting starts to avoid so-called false alarm due to insufficient actual knitting rows.

自动插入行：

Automatic insertion of rows:

- 两侧预勾纱嘴导入编织，5000X 行号标记。
- Import pre-hook yarn feeder into knitting on both sides, and mark 5000X with row number.
- 纱出接力使能打开后部分纱嘴导入，5100X 行号标记。
- After the yarn out is enabled, import part of the yarn feeders, and mark with 5100X row number.
- 两侧预勾线圈脱圈编织。
- Knit on both sides after pre-hook knocking-over.
- 再次脱圈间隔行数设置后预勾脱圈。
- Pre-hook knock over after setting the internal rows after secondary knocking-over.
- 零拉力行数不含自动插入行。
- The number of zero tension rows does not include auto-insert ed rows.

#### ● **起底板停车力矩**

#### **STB Stop Force(Stopping torque of the pull board)**

设置起底板从最高位-脱布位之间升降电机刹车释放后的反向平衡力矩。

Set the reverse balance torque of the lifting motor after the brake is released from the highest position to the cloth falling position of the lifting pull board.

起底板牵拉机构由于自重原因在释放刹车后有自行下落的现象（自由落体），该反向平衡力矩大小与是否安装有平衡块有关。

Due to its own weight, the draw-off mechanism of the pull board will fall by itself after the brake is released (free fall), and the reverse balance torque is related to whether a balance weight is installed or not.

安装有平衡块的反向平衡力矩较小，对于未安装平衡块的反向平衡力矩较大。

The reverse balancing torque with the balance weight is small, and the reverse balance torque without the balance weight is large.

设置方法：

Setting method:

机头复位完成后进入起底板测试，单击 F6:释放刹车测试，背景色高亮时表示刹车处于释放状态。

After the carrier reset is completed, enter the pull board test. Click F6: Release the brake for testing first.

When the background color is highlighted, the brake is released.

1. 手动将起底穿线板往上移动至脱布位之上位置后释放。

Manually move the pull board upward to a position above the cloth dropping position and release it.

2. 判断起底板在重力作用下的降速是否过快，有没有下落不均匀等，需反复移动数次观察，再次单击 F6:释放刹车测试恢复刹车状态。

Determine whether the pull board decelerates too fast and falls unevenly under the action of gravity. It is required to move repeatedly for observation several times, and click F6: Release Brake Test again to restore the braking state.

3. 根据下落判断，单击 F5:起底板设置进入起底板/剪刀夹子设置中修改起底板停车力矩数值。  
Make determination based on dropping. Click F5: Set Pull Board to enter Pull Board / Scissor and Clamp Settings to modify the pull board's stopping torque value.

4. 返回至起底板测试，请先单击停车力矩设置按钮生效参数修改，再单击 F6:释放刹车测试释放刹车进行测试。

Return to the pull board test. Click the Stopping Torque Setting button to make parameter modification take effect, and then click F6: Release Brake Test to release brake for test.

5. 重复 2-4 直至起底板穿线板在任意位置释放后能基本处于静止状态。

Repeat steps 2 - 4 until the pull board's threading board can be basically in a static state after being released at any position.



停车力矩不能设置大于平衡力矩，否则将影响实际牵拉值的大小，因实际牵拉是卷布设置与停车力矩的叠加值。

The stopping torque cannot be set to be greater than the balance torque, otherwise it will affect the actual draw-off value which is the superposition value of the batch setting and the stopping torque.

- **起底板手动升降力矩**  
**Comb Jog Force(Manual lifting torque of pull board)**

手动模式操作起底板升降时的力矩大小，通过调整力矩大小便于精确调整起底板位置设置，如最高位、安全位等有严格位置需求的地方。

Set the torque when operating the pull board in manual mode. By adjusting the torque, users can accurately adjust the position setting of the pull board, such as the highest position, safety position, and other places with strict position requirements.

**备注:**

**Note:**

当需要精确到脉冲级个位数定位时，设置较小的升降力矩定位需要位置附近并可通过设置相对位置设置进行脉冲级精确调整。

When it is required to be accurate to the single-digit position at pulse level, it is required to set the position with small lifting torque near the required position, and set a relative position to achieve accurate adjustment at pulse level.

- **起底板脱圈力矩**  
**STB Datch Force(Knocking-over torque of pull board)**

范围: 0 - 100

Scope: 0 - 100

起底板卷布牵拉到脱布位时脱圈力矩。

Set the knocking-over torque when drawing off the batch on the pull board to the cloth-falling position.

### 7.3 复合针相关参数

#### Comb Needle Parameters

- **起底板脱圈开始行**

#### Comb Open Start(Start row of knocking over of the pull board)

范围: 0 - 30 (行)

Scope: 0 - 30 (rows)

该设置项主要用于起底板升降电机与主罗拉电机在脱圈交接行时尽量减少相互间织物的密度变化,提高良品率。

The setting item is mainly used to reduce the density change of fabric at the row where the pull board lifting motor and the main-roller motor knock over and hand over, so as to improve the pass yield.

- 从该设置行起至脱布位行+起底板脱圈滞后行数之间自动搜寻是否有翻针行、空行等,一旦满足其中之一便停车进入起底板脱圈中的罗拉交接、完成后起底板自动执行复位流程。  
Search for needle reversing row or empty row from the setting row to the cloth falling position row and the pull board knocking-over lagging rows. Once found, stop the machine and hand over the roller in the pull board knocking-over, and then the pull board will perform reset automatically.
- 如果未找到相关条件则运行到设定行后停车交接。  
If the relevant conditions are not found, run to the setting row and stop the machine for handover.
- 如需按设定行交接可将起底板脱圈滞后行数置零即可。  
Number of lagging rows after knocking over of the pull board can be set to zero if handover at the setting row is required.
- 起底板脱圈开始行设置必须  $\geq$  脱布位行+起底板脱圈滞后行数行间, 小于则不执行。  
Setting of the starting row for knocking over of the pull board must be greater than or equal to the cloth falling position rows + the number of lagging rows after knocking over of the pull board. Otherwise, no operation will be performed.

未设起底板脱圈开始行,默认起底板牵拉至‘起底板位置设置’中的脱布位编码器位置后在此行换向点时自动执行起底板脱圈流程。

If the starting row for knocking over of the pull board is not set, the pull board is pulled to the cloth falling position encoder position as indicated in the “Pull board position setting”, and the pull board knocking over will be performed automatically when it is at the reversing point of the row.

- **起底板脱圈行查看**

#### View pull board knocking over rows

编纂: 浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

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机头每次复位后首片编织在日志中统计 1 次起底板交接行号信息。

After every reset of the carrier, for the first piece knitting, the pull board row number will be recorded in the log.

- **起底板脱圈滞后行数**

**Open delayed Rows(Number of lagging rows after knocking over of the pull board)**

范围: 0 - 100 (行)

Scope: 0 - 100 (rows)

起底板到达脱布位后, 主罗拉、起底板升降电机进行卷布交接, 为了防止交接出现织物反弹现象等通过该项行数设定让主罗拉、起底板升降电机依然同时牵拉, 等过设定行后起底板升降电机再进入脱圈、复位流程。

After the pull board reaches the cloth-falling position, the main-roller and the lifting motor of the pull board hand over batches. In order to prevent fabric rebound during handover, the main-roller and the lifting motor of the pull board are still drew off at the same time through setting the number of rows. After passing the set row, the lifting motor of the pull board enters the knocking over and resetting processes.

备注:

Note:

- 此功能主要是用于实现机头不停车起底罗拉、主罗拉完成交接, 请根据织物情况设置合理的滞后行数。  
This function aims to complete handover of the pull board roller and the main-roller without carrier shutdown. Please set a reasonable number of lagging rows according to the fabric condition.
- 程序在复位后首片编织中系统日志有脱圈行显示信息。  
After program reset, for the first piece knitting, the knocking over row information is displayed in the system log.
- 因脱圈位置设置是编码器值, 受牵拉力变化等影响故脱圈行显示有上、下行浮动现象。  
As the knocking over position is set as the encoder value, the knocking over row shows up and down floating due to the change of pulling force.

- **起底板脱圈回升**

**STB Datch Rise(Lift the pull board after knocking over)**

单位: 脉冲

Unit: Pulse

范围: 0 - 200

Scope: 0 - 200

起底板到脱圈位时反向回升的脉冲距离。

Set the pulse distance of lifting in reverse direction when the pull board reaches the knocking-over position.

主要用于钢丝起底板到脱圈位后直接抽丝回零因牵拉力因素导致抽丝困难, 反向回升若干距离释放

牵拉力影响后便于脱圈抽丝。

It is mainly used for the circumstance when it is difficult to withdraw wire due to traction force by directly withdrawing wires and returning to zero after the wire pull board reaches the knocking-over position. Lifting a certain distance in the reverse direction can release the affect from the traction force and facilitate wire withdrawing during knocking over.

复合针结构的起底板中同样适用

It is also applicable to the pull boards with a composite needle structure.

反向回升距离请合理设置，防止回升过大造成起底板抖动。

Be sure to set the reverse lifting distance reasonably to prevent the pull board from shaking due to excessive lifting.

## 7.4 穿线钢丝相关参数

### Related parameters of threading wire

#### ● 钢丝穿丝速度

##### Wire threading speed

单位：脉冲速率

Unit: Pulse rate

范围：0 - 100

Scope: 0 - 100

设定钢丝穿丝的工作速度。

Set the wire threading speed.

**备注：**

**Note:**

需合理设置，不当参数容易引起穿丝打滑失步、到位过冲、钢丝窜出、钢丝磨损加剧、穿丝噪音过大等系列问题，根据装置的实际情况设定可靠的速度值。

Be sure to set the parameter reasonably. Otherwise, it may cause slipping and out-of step of the thread, overshooting in place, wire escaping, serious wire wear, excessive wire threading noise, and other issues. Set a reliable speed value based on actual condition of the device.

#### ● 钢丝回丝速度

##### Wire returning speed

范围：0 - 100

Scope: 0 - 100

设定钢丝抽丝、回零速度。

Set the wire withdrawing and returning-to-zero speed.

**备注：**

编纂：浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

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Note:

**设置同上。**

The settings are the same as above.

## ● 送丝到位检查

### Wire down check

送丝到位检查主要是防止穿丝过程中失步现象进行检测。

Wire feeding in place inspection is mainly to prevent out-of-step in the threading process.

切换型：打开 / 关闭

Switching type: Enabled / disabled

打开：钢丝穿丝距离依据‘钢丝结束行程’参数执行、与到位检测传感器信号联合判断进行失步检查。

Enabled: The wire threading distance is based on the ‘Wire End Stroke’ parameter. Please carry out the out-of-step inspection in combination with the in-place detection sensor signal.

工作机制：

Working mechanism:

- 穿丝至钢丝结束行程的脉冲位置，如在钢丝结束行程参数之前触发到位信号后停止，完成正常穿丝。

Thread wire to the wire end stroke pulse position. For example, trigger the in-place signal before wire end stroke parameter and stop to finish normal wire threading.

- 到达结束行程设置后依然未触发到位信号则报警‘钢丝到位异常’提示。

If the in-place signal is still not triggered after reaching the wire end stroke setting, the alarm stating ‘Error with wire in place’ will be reported.

- 一般情况下可将‘钢丝结束行程’位置设置大于实际信号触发位置加上若干安全距离，可通过钢丝当前位置参考。

Generally, the ‘Wire End Stroke’ can be set larger than the actual signal triggering position plus several safety distances, which can be referenced by the current position of wire.

关闭：关闭钢丝穿丝到位检测，穿丝失步后无报警提示。

Disabled: When “Wire Thread In Place Detection” is disabled, there will be no alarm prompt after the thread is out of step.

## ● 零位到位信号合并

### Zero+Bound united(Combine zero position in-place signals)

切换型选择：打开/关闭

For switching models, select: Enabled / disabled

打开：以穿丝到位信号传感器合并作为零位基准。

Enabled: Combine the thread in-place signal sensors as the zero position reference.



关闭：零位到位信号合并方式无效，安装有物理零位信号或者零位、到位信号均有等。

Disabled: The combination mode of zero position in-place signals is invalid, for models installed with physical zero position signals or zero position in-place signals.

只安装到位信号传感器，未安装零位传感器，穿丝零位与到位信号合并，钢丝实际的开始穿丝位置是相对零位非真正零位。

If only the in-place signal sensor is installed, but the zero position sensor is not installed, the actual start wiring position is the zero position but not true zero position when combing the wire threading zero position with the in-place signal.

- 一般情况下不推荐这种经济型方案，期间钢丝从数值零位开始穿丝到钢丝结束行程位中如有失步现象等发生需要等下次穿丝中才能通过到位传感器发现。

Generally, this economic scheme is not recommended. During the period, if there is out-of-step from the time when the wire starts threading from the zero position to the wire end stroke position, it can only be detected through the in-place sensor in the next wire threading.

## ● 钢丝挂布优化

### Wire work dir(Optimize cloth hanging on wire)

切换型选择：打开 / 关闭

For switching models, select: Enabled / disabled

打开：执行钢丝挂布优化。

Enabled: Enable "Optimize Cloth Hanging on Wire".

关闭：关闭挂布优化。

Disabled: Disable "Optimize Cloth Hanging on Wire".

起底板工作上升至等待位时，钢丝穿丝从零位提前至花型编织区外等待，一般留有的 1 英寸安全距离。

When the pull board is lifted to the waiting position, the wire threading is advanced from the zero position to waiting outside the pattern knitting zone. Generally, a safety distance of 1 inch will be reserved.

- 工作流程：

Workflow:

根据钢丝座安装位置即穿丝方向，在编织区左、右侧进入编织区外加 1 英寸安全距离提前等待挂布穿丝，最高位挂布穿丝幅宽按花型首行宽度加固定安全距离。

According to the installation position of the wire seat, that is, the threading direction, enter the knitting zone from the left and right sides of the knitting zone plus 1 inch of safety distance, and wait for cloth hanging to thread in advance. The threading width of cloth hanging at the highest position is based on the width of the first row of the pattern plus a fixed safety distance.

- 示例：

Example:

‘钢丝穿丝方向’ 右往左，穿丝提前在花型首行宽度右侧+1 英寸安全距离外等待，穿丝宽度则

按花型首行幅宽加 1 英寸超出距离，有预勾编织同时再叠加。

“Wire threading direction” is from right to left. Wire threading waits outside the right side of the width of the first row of the pattern plus 1 inch in advance. Wire threading width is the width of the first row of the pattern plus 1 inch, which will be superimposed for pre-hooking knitting.

该设置主要是针对幅宽较小的花型为了减少穿丝、回丝时间提高工作效率。

This setting is mainly aimed at patterns with smaller width in order to reduce threading and wire returning time and improve working efficiency.

- **钢丝穿丝方向**  
**Wire work dir**

切换选择：左/右

Switch between: Left / right

根据穿丝步进电机的机械构造、安装位置、接线方式等设置穿丝电机的复位方向，保证复位正确后才能对‘钢丝位置相关设置’中参数进行设置。

Set the reset direction of the wire-threading motor according to the mechanical structure, installation position, and wiring mode of the wire-threading step motor. Only after ensuring that the reset is correct can the parameters in ‘Related Settings of Wire Position’ be set.

- **压纱密度**  
**Press STI**

选择压纱编织时的密度设置。

Select the density setting when chopping and knitting.

- **起底板压纱使能**  
**Press enabled**

切换选择：打开/关闭

Switch between: Enabled / disabled

压纱操作作用于起底板在最高位执行穿丝前，为减少梳子针将起底首行编织前、后线圈间的连接线被梳子针上升后被干涉顶住未落在穿线钢丝之下(梳子针之间)所做的改良。

Chopping is used before the pull board threads at the highest position. This function is improved to reduce the circumstance that the connection line between the front and rear loop of the first row of knitting by the comb needle cannot fall between threading wires because it is interrupted due to interference after being lifted by the comb needle.

- 起底编织行部分前、后线圈连接线未被钢丝牵拉将造成有效线圈数减少、牵拉时作用力不均。

If the connecting lines of the front and back loops of the knitting row of the pull board are not pulled by wires, the number of effective loops will be reduced and the tension will be uneven.

- 预勾编织的线圈未被钢丝牵拉作用将造成预勾脱圈不完整。

If the pre-hook knitting loop is not pulled by wire, the pre-hook knocking over will be incomplete.

- 打开

Enabled

执行压纱插入流程，压纱自动插入行为机头往复运行一个来回(1 转)，前、后针床分别做一次压纱编织。

Execute the chopping insertion process. The automatic insertion of chopping runs back and forth (1 turn) of the carrier, and the front and back needle bars have one chopping knitting once respectively.

- 程序自动插入控制指令

The program automatically inserts control instructions.

自动根据大横机、直选机类型执行相应的三角动作、选针方式。

Execute the corresponding triangular action and needle selection mode automatically according to the type of large flat knitting machine and direct selection machine.

- 大横机(3 针道、预选)

Large flat knitting machine (3 needle channels, pre-selected)

动作三角工位：H 位工位指令，<空,压针> / <编制,压针>。

Action triangle station: H position station instruction, <Empty, Pressing>/<Compile, Pressing>

选针方式：H 位单面满针。

Needle selection method: H position: full needles on one side.

幅宽：起底首行宽度+预勾宽度(可选)

Width: Width of the first row of the pull board + pre-hook width (optional)

- 压针工位是紧吊目工位的反向执行，即左紧吊是右压针、右紧吊是左压针。

The pressing station is the reverse execution of the tight tucking station, that is, left tight tucking corresponds to right pressing, and the right tight tucking corresponds to left pressing.

- 直选(2 针道、直选)

Direct election (2 needle channels, direct channel)

动作三角工位：<空,空> / <编制,空>

Action triangle station: <Empty, Empty> / <Compile, Empty>

选针方式：无选针(16 号色码)

Needle selection method: No needle selection (No. 16 color code)

- 关闭：

Disabled:

起底板压纱功能关闭。

Pull board chopping function is disabled.

**备注：**

编纂：浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

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**Note:**

左、右行生克机构如果在不工作位置时机头运行中仍出现干涉梳子针时，压纱功能无法使用必须关闭。

If the comb needle is still interfered when the left and right sink enabling mechanisms are not in the working stations during carrier running, the chopping function cannot be used and must be disabled.

● **预勾纱间隔针数**

**Needle interval(Interval needles of pre-hook yarn)**

单位：针

Unit: Needle

默认：0

Default: 0

设定预勾编织时前、后编织组织中同侧针床线圈间隔的针数。

Set the number of needles between the loops of the needle bar on the same side in the front and back knitting tissues during pre-hook knitting.

= 0: 按程序默认的 '1 隔 7' 纱嘴之间同侧平移 1 针的固定方式编织。

= 0: Knit according to the program's default fixed-mode by translating one needle on the same side between '1-interval-7' yarn feeders.

> 0: 按设定的间隔针数。

> 0: Knit based on the set number of interval needles

● **预勾纱密度**

**Hook STI(Pre-hook yarn density)**

设定预勾编织时线圈的密度大小，此值应根据机号、纱线类型等合理设置。

Set the density of the loops during pre-hook knitting. This value should be set reasonably according to machine number and yarn type.

密度设置需要考虑预勾参与的纱嘴数量，密度值大小等因素，需测试起底板牵拉至安全位时能否可行，否则将触发安全位信号检测报警。

Density needs to be set considering such factors as the number of yarn feeders and density value involved in pre-hook. It is necessary to test whether it is feasible to pull the pull board to the safety position. Otherwise, the safety position signal detection alarm will be triggered.

● **工作起始针**

**Start needle**

设定预勾编织时控制工作起始针附近开始编织，便于控制预勾纱线的展开长度减少预勾脱圈可靠率。

When setting pre-hook knitting, the knitting is started near the working starting needle to help control the unfolding length of pre-hook yarn and reduce the reliability of pre-hook knocking over.

程序有智能对设置工作针位置检测，当工作起针点大于起针点设置非法时自动则取消预勾编织。  
The program features intelligent detection of the working needle positions. When the working starting needle point is greater than the starting needle point which is illegal, the pre-hook knitting will automatically cancel.

**该设置项关联用户 ID，在白名单中的可以使用此项设置。**

**This setting option is associated with the user ID, which is available for users in the white list.**

## ● 废纱起头使能

### Waste yarn

切换选择：打开/关闭

Switch between: Enabled / disabled

废纱指定纱嘴：8 号

Designate waste yarn's yarn feeder: No. 8

该设置功能主要用于 E12 以上机型无废纱编织时起头密度紧度目需求时钢丝无法正常抽丝而采用的一种增加 2 行废纱起底的过渡方式。

This setting function is mainly used to increase 2 rows of waste yarns on the pull board as transition on E12 and above models without waste yarn knitting in which the wire withdrawing is not available when there are tight stitch requirements for starting density.



该设置项只用于普通罗拉机花型，起底板编译的花型无效。

This setting option is only used for common roller patterns, and is invalid in patterns compiled on the pull board.

- 打开：程序自动插入相应的起底废纱行编织，废纱起始行以被工作参数中设定的 '编织起始行' 出针进行匹配。

Enabled: The program automatically inserts the corresponding waste yarn row for knitting on the pull board. The waste yarn starting row is matched with the 'Knitting Starting Row' set in the working parameters.

- 关闭：按编织起始、结束行等去除废纱行裁剪设定编织。

Disabled: Knitting is set by cutting waste yarn rows from start and end rows of knitting.

## ● 钢丝运动检测使能

### Wire run-check enabled

钢丝运动检测是一种辅助检测钢丝移动时是否有异常打滑失步、断丝等问题。

Wire motion detection is a kind of auxiliary detection. It checks for abnormal slipping, out of step, broken wire, and other problems during wire motion.

- 关闭：钢丝运动检测方式无。

Disabled: There is no wire motion detection method.

- 脉冲：送丝、回丝经由钢丝移动通过摩擦力带动检测轮，轮上等分安装若干磁钢与单一传感器进行单位时间脉冲信号变化量，检测钢丝移动过程中出现的打滑、断丝等故障。

Pulse: For wire feeding and wire returning, the wire moves and drives the detection wheel by friction force. Several magnetic steels and a single sensor are equally installed on the wheel to detect the change of pulse signal per unit time and detect such faults as slipping and broken wire during wire movement.

- 常开：用于钢丝断丝后触发 IO 信号报警。

Normally on: It is used for triggering IO signal alarm after broken wire.

- **钢丝零位信号常开**

**Wire-zero reverse**

切换选择：常开 / 常闭

Switch between: Normally on / Normally off

穿线钢丝基准零位信号**常开**、**常闭**选择，请根据所使用的传感器类型选择。

Select whether the threading wire's benchmark zero position signal is **normally on** or **normally off**. Please select based on the sensor type used.

**名词解释：**

**Explanation of terms:**

- 常开就是上电就处于开路状态，来信号才导通。

“Normally on” means that it is normally on after powering on, which is connected when there are signals.

- 常闭就是上电就处于接通状态，来信号才断开。

“Normally off” means that it is connected after powering on, which is disconnected when there are signals.

- **钢丝到位信号常开**

**Wire-down reverse**

切换选择：常开 / 常闭

Switch between: Normally on / Normally off

穿线钢丝到位信号**常开**、**常闭**选择，请根据所使用的传感器信号类型选择。

Select whether the threading wire in-place signal is **normally on** or **normally off**. Please select based on the sensor type used.

该项与‘送丝到位检查’为关联设置，只有‘送丝到位检查-打开’时此项设置才生效。

This setting option is associated with ‘Wire Feeding In Place Inspection’, which is only valid when ‘Wire Feeding In Place Inspection’ is enabled.

- **钢丝到位回退**

**Wire rollback**

钢丝到位后再按设定回退若干距离。

After a wire is in place, it will be retracted for several distances based on the setting.

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增加到位回退设置可防止起底板牵拉过程中与其他零件之间干涉以及信号接触变化触发的报警。  
The in-place retraction setting is added to prevent interference with other parts when drawing off the pull board and alarm triggered by signal contact change.

## 7.5 起底板其他参数

### Other parameters of pull board

- **落布罗拉转动时间**

#### Drop rolling time(Rotation time of cloth dropping roller)

范围: 0 - 30000 (毫秒)

Scope: 0 - 30000 (ms)

起底板结束行后进入主罗拉卷布转动的的时间, 其作用是将织物能快速脱落便于下一片正常编织。  
After the pull board end row, enter the main-roller batch rotation. The function is to quickly fall off the fabric and facilitate the normal knitting of the next piece.

落布时罗拉转动快慢取 '起底板/剪刀夹子设置' 中 '卸片罗拉' 值。

When dropping cloth, the rotation speed of roller is the "Unloading Roller" value in "Pull Board / Scissor and Clamp Settings".

- **落布吹气时间**

#### Blowing down(Blowing time during cloth dropping)

范围: 0 - 99

Scope: 0 - 99

该设置用于起底板落布时有附加织物吹气装置的机型, 其作用是在落布罗拉作用同时对织物进行吹气辅助让织物尽快脱落。

The setting is used for models with an additional fabric blowing device when the pull board drops cloth. Its function is to blow the fabric while dropping cloth so that fabric can fall off as soon as possible.

某些织物轻薄、静电较大等容易吸附在钢制起底板安全门上造成脱落受阻, 通过安装在适当位置的烟管式辅助吹气装置可以协助织物正常脱落。

Some fabrics are light and thin with large static electricity, which are likely to be attached on the safety door of pull board, and are difficult to fall off. A smoke-pipe-type auxiliary blowing device can be installed in appropriate position to help fabrics fall off normally.

- **落布检测使能**

#### Drop check(Enable cloth falling detection)

通过安装有辅助织物脱落检测装置的红外、光电等传感器装置用于起底板结束编织后至起底板上升之前, 程序主动打开检测织物是否安全脱落。

Install infrared, photoelectric and other sensor devices that help fabric falling detection, which are used after the pull board ends knitting and before the pull board is lifted. The program will automatically enable to check for safe fabric falling.

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打开：开启检测。

Enabled: Enable detection.

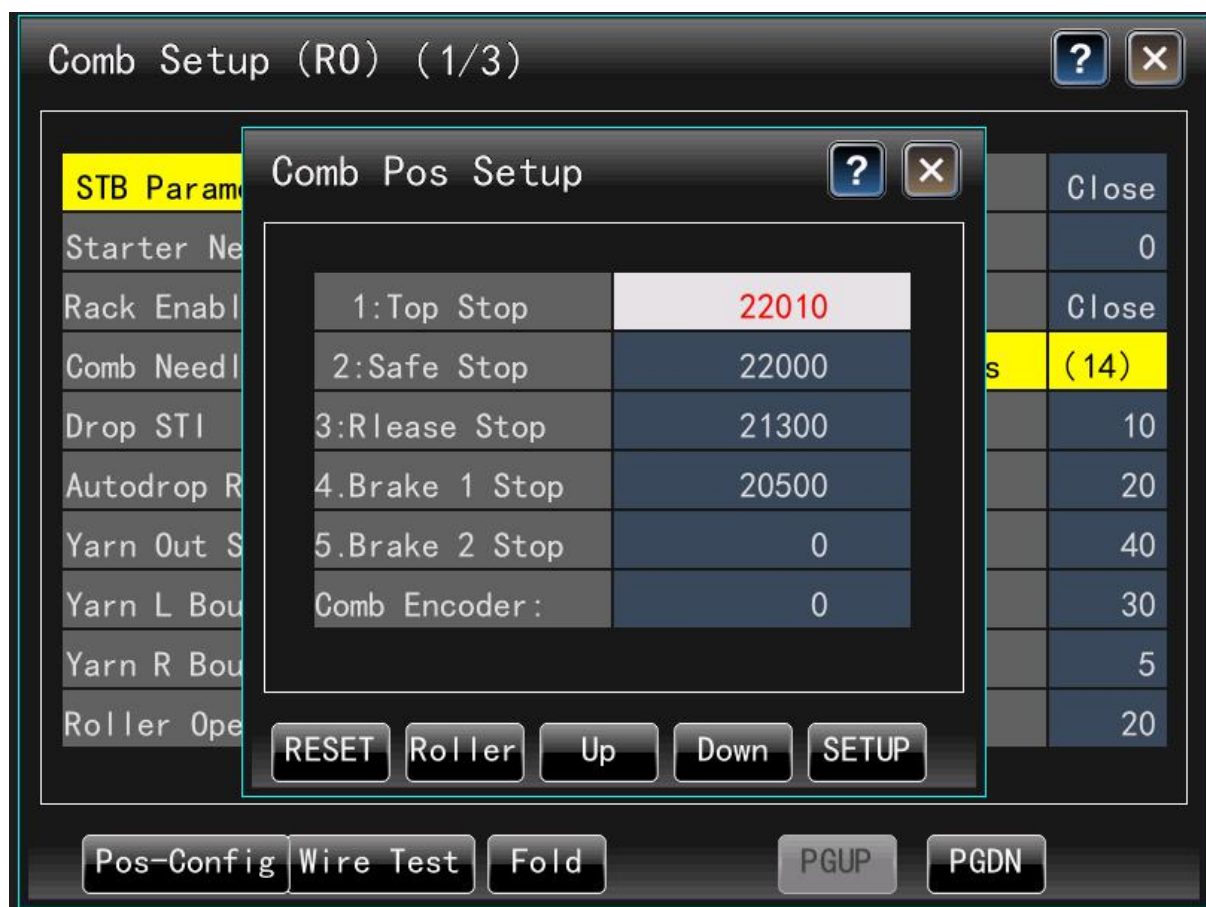
关闭：关闭检测。

Disabled: Disable detection.

## 7.6 位置设置

### Position setting





该窗口中对起底板的几个重要位置进行查看、设置、修改等。

This window allows for viewing, setting, and modifying several important positions of the pull board.

调整位置前有关联检测防止起底板升降与主罗拉发生干涉，需先单击“**罗拉开**”按钮，否则单击“**上升**”、“**下降**”等按钮将弹出‘罗拉未打开’提示。

Before adjusting the position, there is related detection to prevent interference between the lifting / lowering of the pull board and the main-roller. Click the “**Roller-Enabled**” button first. Otherwise, a prompt stating “Roller Not Enable” will appear after clicking the “**Up**” and “**Down**” buttons

## ● 1:最高位

### 1:Top stop (Highest position)

设置起底板上升到挂布最高位置。

Set the highest position of hanging cloth for the pull board.

最高位必须在穿丝后能可靠的牵拉起底行前、后线圈组织、同时与纱嘴出线口保持数毫米安全距离防止干涉、损坏穿线板梳子。

The highest position must be able to draw up the front and back loops of the pull board row reliably after threading, and keep a safety distance of several millimeters from the outlet of the yarn feeder to prevent interference and damage to the threading board’s comb.

● 钢丝起底板设置  
Set wire pull board

手动上升、下降大致调整好位置，查看起底板实际位置，输入以当前实际位置做参照零位的正、负相对值进行微调，正确后单击设置弹出 '是否确认修改( 1:最高位)? ' 按确认完成。

Manually lift and lower to adjust a rough position, check the actual position of the pull board, enter the positive and negative relative values with the current actual position as reference zero position for fine tuning. After correct setting, click "Settings" to pop up 'Sure to modify (1: the highest position)?'. Press "Confirm" to complete.











## ● 2:安全位

### 2: Safe stop(Safety position)

设置起底板挂布牵拉后的安全位置，此位置必须满足不能与织针上升时、沉降片等发生干涉，同时安全位信号传感器不能被触发。

Set the safety position after drawing off the hanging cloth on the pull board to ensure that there is no interference against the down sinker is allowed when the knitting needle is lifted, and the safety position signal sensor cannot be triggered.

#### 备注:

#### Note:

起底板挂布牵拉到安全位之后，升降电机配合刹车指令保持 1-2 行，防止起底板反弹回升、编织起头行减少织针与三角因牵拉较紧时走针摩擦噪音过响等。

After the pull board hanging cloth is pulled to a safety position, the lifting motor keeps for 1 - 2 rows based on the brake instructions to prevent the pull board from rebounding and picking up, decreasing knitting starting rows, excessive noise due to needle friction when the knitting needle and the triangle are pulled tightly.

## ● 3:脱布位

### 3:Release Stop(Cloth dropping position)

设置起底板执行脱圈动作的位置，在此位置主罗拉、起底板罗拉开始进行交接处理，也就是 Set the position where the pull board knocks over, at which the main-roller and the pull board roller start to hand over, that is,

设置顺序，起底板最高位 - 起底板安全位 - 脱布位，按下降、上升键调整初步位置，精确调整可以触目数值区后弹出软键盘中输入相对差值再按设置查看具体位置。

set the sequence: highest position of the pull board- safety position of the pull board - cloth falling position. Press the lowering and lifting buttons to adjust the preliminary position. For accurate adjustment, touch the value zone and wait for a keyboard to pop up. Then, enter relative difference value, and then press the setting to view the specific position.

此位置设置需观察主罗拉交接闭合后是否会夹住起底板，一般需综合考虑即不会夹住同时必须在起底板安全门之上、之下的话脱圈后织物将落在安全门之内造成安全隐患。

To set this position, it is necessary to observe whether the pull board will be clamped after the main-roller hand over and is closed. Generally, comprehensively consider the safety risks when fabrics fall inside the safety door if the pull board will not be clamped and if the position must be set above or below the safety door of the pull board.

#### 相对差值:

#### Relative difference:

相对差值用于在某一位置区间进行微调，因上升、下降按键很难对位置进行细微调整，故引入了在设置的位置区间手动输入相对差值这种方式进行细调。

Relative difference is used for fine tuning at a certain position interval. Because it is difficult to fine tune the

position by pressing the lifting and lowering buttons, manual entry of relative difference is added to the set position interval for fine tuning.

相对插值范围:  $\pm 20$  (脉冲)

Relative difference range  $\pm 20$  (pulse)

#### ● 4:上刹车位

##### 4: Brake 1 Stop(Upper brake position)

起底板从零位上升至挂布过程中, 为了减少起底板对安全门打开的冲击, 设置上刹车位暂停位置, 一般距离前摆连杆机构装置一段距离该距离需根据实际情况反复调整得出, 然后再逐步加速至设定速度上升, 可大幅减少对安全门的冲击所发出的噪音。

In the process of lifting the pull board from zero position to cloth hanging, a suspension position of the upper brake position is set to reduce the impact of the pull board on opening safety door, which is generally set with a certain distance from the front-swing control connecting rod. It needs to be adjusted repeatedly according to the actual situation, and then be gradually accelerated to the set speed. This can greatly reduce the noise caused by the impact on the safety door.

#### ● 5:下刹车位

##### 5: Brake 2 Stop(Lower brake position)

在起底板复位至零位传感器过程中, 为了减少起底板对起底板安全门开合控制机构冲击而设定下刹车位暂停位置, 一般在安全门前、后摆动控制连杆上一段距离, 起底板再次下降时因初速度较小接触、带动连杆装置后可减小门的后摆冲击噪音。

In the process of resetting the pull board to the zero position sensor, a suspension position of the lower brake position is set to reduce the impact of the pull board on the opening and closing control mechanism of the safety door, which is generally set with a distance between the front- and rear-swing control connecting rods of the safety door. When the pull board drops again, the noise on the rear swing mechanism of the door due to small initial speed after the pull board contacts and drives the rod connection device can be reduced.

下刹车位置需根据起底板本身的质量、是否有平衡块及安全门的质量、后摆机构等进行反复调整设置。

The lower brake position should be adjusted and set repeatedly according to the quality of the pull board itself, quality of the safety door, and the back swing mechanism as well as a balance weight is installed or not.

合理设置下刹车位可以大幅减少冲击安全门的噪音。

Reasonable setting of lower brake position can greatly reduce the noise from impacting the safety door.

#### ● 起底板位置

##### Comb encoder(Pull board position)

显示当前起底板所在位置。

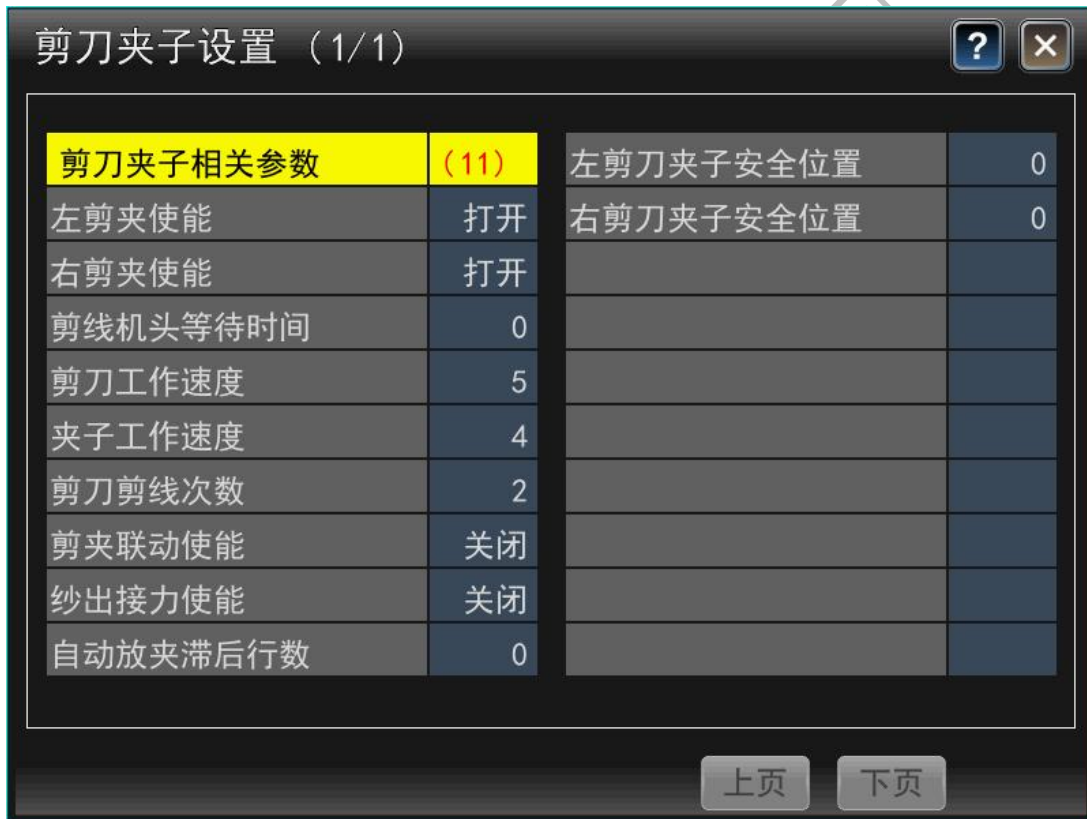
Display the current position of the pull board.

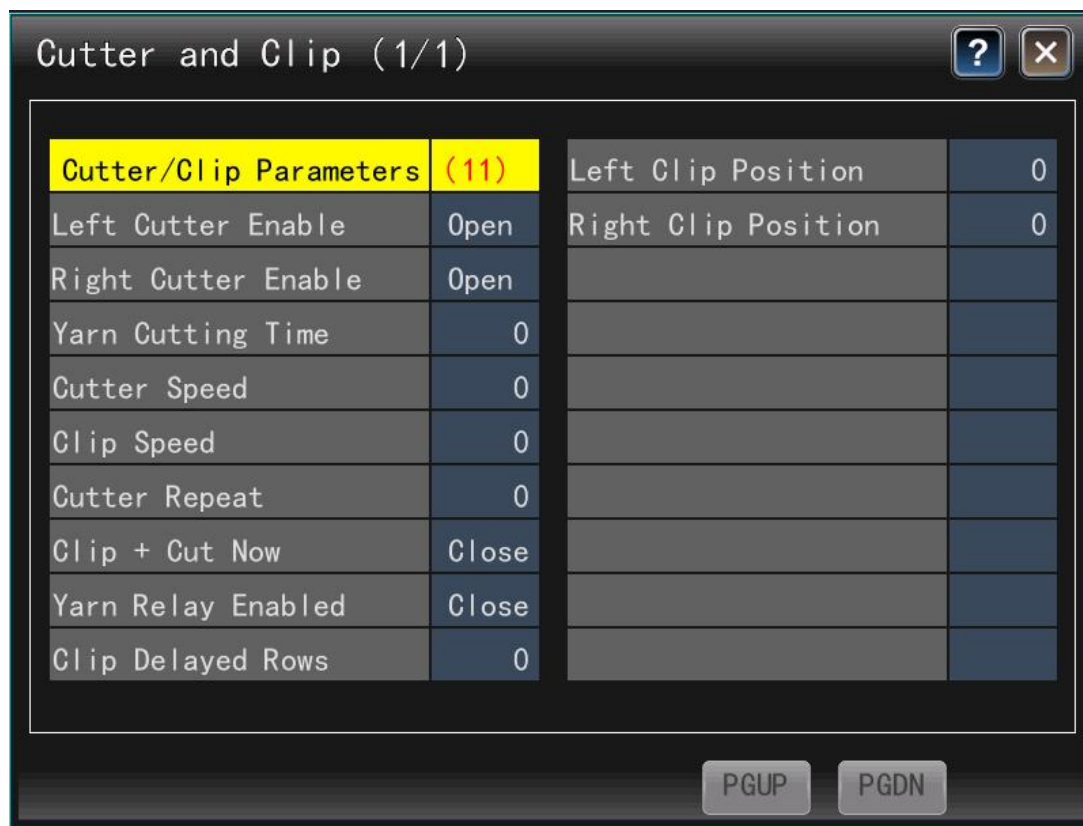
## 7.7 钢丝测试

### Wire test

快捷方式进入钢丝位置相关设置窗口。

Enter the wire position related settings window.





## 8. 剪刀夹子设置

### Cutter And Clip

#### 8.1 剪刀夹子相关参数

##### Cutter/Clip Parameters

- 左剪夹使能

##### Left cutter enable

切换选择：打开/关闭

Switch between: Enabled / disabled

- 独立控制左剪夹装置的启用或关闭，一般经济机型配套 1 组剪夹装置，其安装位置是以左侧为主，带有剪夹指令时的花型需处于打开状态。

Independently control the enabling or disabling of the left scissor and clamp device. In general, the economic models come with 1 set of scissor and clamp device, which is mainly installed on the left side. For patterns with scissor and clamp instructions, this function must be enabled.

- 打开、关闭选择主要是为了针对花型是否有剪夹指令，同时对处于打开状态开机后将进行必要的位置信号检测防止夹子等位置异常。

The selection of enabling and disabling is mainly to determine whether there are scissor and clamp instructions for the pattern. At the same time, carry out necessary position signal detection when the function is enabled after powering on to prevent abnormal positions of scissor and clamp.

打开：左侧剪刀夹子功能启用。

Enabled: The left scissor and clamp function is enabled.

关闭：左侧剪刀夹子功能关闭。

Disabled: The left scissor and clamp function is disabled.

## ● 右剪夹使能

### Right cutter enable

切换选择：打开/关闭

Switch between: Enabled / disabled

独立控制右剪夹装置的启用或关闭，经济机型只用一组剪刀夹子装置时，一般默认启用左剪夹使能打开、右剪夹使能关闭。

Independently control the enabling and disabling of the right scissor and clamp device. In general, economic models only use one set of scissor and clamp device, the “Enable left scissor and clamp” is enabled by default, and the “Enable right scissor and clamp” is disabled.

打开：右侧剪刀夹子工作生效。

Enabled: The right scissor and clamp is enabled.

关闭：右侧剪刀夹子工作关闭。

Disabled: The right scissor and clamp is disabled.

### 备注：

#### Note:

编织中途将剪夹使能打开或关闭请关机重启，系统参数级的设置关机、重启方能生效。

If “Enable scissor and clamp” is enabled or disabled during knitting, be sure to power off the machine and restart it, and power off and restart the system-level settings to make it take effect.

## ● 剪线机头等待时间

### Yarn cutting time

单位：毫秒

Unit: Milliseconds

范围：200 - 30000

Scope: 200 - 30000

默认：2000 (2 秒)

Default: 2000 (2 seconds)

设定机头在夹线、夹剪联动指令时在左、右纱出位置机头临时停车等待的时间，过临停等待时间后机头自动运行。

Set the temporary stopping and waiting time of the carrier in the left and right yarn out positions when the carrier sends clamping or scissor with clamp instructions. The carrier will run automatically after the

temporary stopping and waiting time.

该设置是为了防止机头与正在执行夹线、夹剪联动装置发生撞击干涉。

This setting is to prevent the carrier from colliding and interfering with the scissor with clamp device when clamping wire.

- 纱出后夹线与换向后机头发生撞击夹线装置。  
After yarn out, the carrier may collide with the clamping device during clamping and direction conversion.
- 夹线指令时机头回转行程与同侧夹线工作装置发生撞击。  
When sending clamping instructions, the carrier rotation stroke may collide with the clamping device on the same side.
- 增加夹子动作与运行方向同/反选择设置, 当设置反后可以避免撞击干涉问题。  
Add the same / reverse direction between the clamp and the running direction. When reverse direction is set, it can avoid the impact or interference.

- **剪刀工作速度**  
**Cutter speed**

单位: 脉冲速度  
Unit: Pulse velocity

范围: 1 - 10  
Scope: 1 - 10

设定剪刀在工作时的动作速度, 1-10 线性变化, 数值越大速度越快。  
Set the scissor working speed, which is linearly changed at 1 - 10. The larger the value, the faster the speed.

- **夹子工作速度**  
**Clip speed**

范围: 1 - 10  
Scope: 1 - 10

默认: 4  
Default: 4

设定夹子在工作时的动作速度。  
Set the clamp working speed.

- **剪刀剪线次数**  
**Cut repeat**

单位: 次  
Unit: Time

范围: 1 - 3



Scope: 1 - 3

设定剪刀剪线动作的次数，大于 1 次的设定主要为了防止纱线原因未被剪断的现象发生。  
Set the cutting times of the scissor. The setting of greater than 1 is mainly to prevent the yarn from not cutting.

- **剪夹联动使能**

- Clip+cut now**

切换选择：打开/关闭

Switch between: Enabled / disabled

打开：夹线完成后，按顺序执行剪线动作指令。

Enabled: After clamping, execute the cutting action instructions based on sequence.

关闭：剪、夹动作独立执行。

Disabled: Scissor and clamp actions are performed independently.

- **纱出接力使能**

- Yarn relay enabled**

后行系统纱嘴纱出通过先行系统接力纱出至安全、合理停放位置。

The subsequent system continues the yarn out of the yarn feeder to a safe and reasonable stopping position through the previous system.

切换选择：打开/关闭

Switch between: Enabled / disabled

打开：纱出接力，程序自动插入相关动作。

Enabled: Continue yarn. The program automatically inserts related actions.

关闭：纱出按 CNT 指令执行。

Disabled: Yarn out is executed according to CNT instructions.

- **纱出接力缘由**

- Reasons for continuous yarn out

紧凑机型上左、右纱出时非先行系统携带的纱嘴无法正确的停放在纱出设定位置与同向剪夹机头发生干涉，通过先行系统接力的方式将纱嘴带到“组 8”相应的设定位置。

On the compact machine, when the left and right yarns are out, the yarn feeders carried by the non-preferred system cannot be correctly placed in the setting position of yarn out, which interferes with the scissor and clamp carrier in the same direction. Therefore, the yarn feeders are brought to the corresponding set position of “Group 8” by continuing the preferred system action.

- **纱出接力使能同时用于纱进先行系统无法携带问题。**

- The continuous yarn out can also be used for solving the issue that the yarn cannot be carried after entering the preferred system.

- 示例：2 系统机型**

- Example: 2 System model**

- 右行，左纱进用 2 系统时，先用左系统将纱嘴带至针板外侧附近，然后空跑返回再用 2 系

统正常携带。

When the right and left yarns enter the second system, the yarn feeder is brought to the vicinity of the outside of the needle plate with the left system first, and then is returned after empty running for carrying with the second system.

- 右侧纱进用 1 系统，首先插入用 2 系统将纱嘴带至针板外侧附近，然后返回再用 1 系统正常携带。

When right yarn enters the first system, the second system is inserted first to bring the yarn feeder to the outside of the needle plate, and then returned to the first system for carrying.

- 纱出接力系统自动接管的行号以 51XXX 开头显示。

The row number after automatic takeover of continuous yarn-out system is represented by starting with 51XXX.

## ● 自动放夹滞后行数

### Clip delayed rows(Number of lagging rows after automatic paying off)

该设置项用于起底板、剪刀夹子使机型输入普通罗拉机花型(非起底板编译)，由程序自动接管的放夹动作指令。

This setting option is used for the laying off instructions of common roller pattern (not complied with the pull board) which are entered by a machined through pull board and the scissor and clamp, and taken over by the program automatically.

当某一夹子的全部纱嘴纱进完成后自动打开夹子放线。

When all the yarn feeders of a clamp complete yarn in, the clamp is automatically opened to pay off.

自动放夹指令，程序有智能判断机制是否有足够的行数可以执行，例如最后一把纱嘴编织结束后还有 4 行落布结束而滞后行数设了 6 行将无法执行，系统直接在最后落布结束后直接夹、剪。

With regard to the automatic paying off instructions, the program can intelligently determine whether the mechanism has enough rows to execute. For example, after the last yarn feeder knitting completes, there are still 4 rows of cloth dropping, but the lagging row number is set to 6, it will be unable to execute the instructions. The system will directly cut with scissor and clamp after the last cloth dropping row ends.

引入“自动放夹滞后行数”后便于根据织物需要释放夹子指令按自定义行后再执行。

The introduction of “Number of lagging rows after automatic paying off” facilitates the release of clamp instructions based on customized rows it the fabric needs the paying off instructions.

## ● 左剪刀夹子安全位置

### Left clip position(Safety position of left scissor and clamp)

单位：毫米 (mm)

Unit: Millimeter (mm)

默认值：0 (180mm)

Default value: 0 (180 mm)

设定纱嘴左纱出按‘组 8’设置停放以此为参考零位（相对零位），停放位置编织区外。

Set the left yarn out of the yarn feeder according to the 'Group 8' setting and place it as the reference zero position (relative zero position). The stopping position is outside the knitting zone.

旧的停放位置是以系统参数-起底板相关参数中左、右纱出位置为基准点，停放位置往编织区内。  
The old stopping position takes the left and right yarn out positions in the system parameters-related parameters of the pull board as the benchmark point. The stopping position is within the knitting zone.

新增的设置项保证纱出纱嘴能可靠停放在剪刀夹子装置的左侧，防止旧模式因参数设置有停在剪夹装置上发生干涉问题，特别适用于紧凑型。

The newly added setting option ensures that the yarn-out yarn feeder can be reliably placed on the left side of the scissor and clamp device. Different from the old mode by placing it on the scissor and clamp device, this setting prevents the interference problem due to the parameter setting, which is especially suitable for compact models.



新程序已默认启用这种纱出参照零位模式。

The new program has enabled this yarn-out reference zero position mode by default.

\* 设置步骤:

\* Setting steps:

用卷尺、钢皮尺等计量器具测量针板第 1 针与剪刀夹子装置的安全距离，输入。

Measure the safety distance between the first needle of the needle plate and the scissor and clamp device with measuring instruments such as tape measure and steel tape measure, and enter it.

\* 安全距离

\* Safety distance:

移动纱嘴至左侧的夹子附近，手动测试边缘夹子动作时的最佳不干涉纱嘴的位置并记录。

Move the yarn feeder near the left clamp, and manually test and record the best position where there is no interference against the yarn feeder when clamping the edges.

默认值‘0’最好是重新输入为非零数值，防止默认值因其他原因未生效。

It is preferred to set the default value ‘0’ to a non-zero value to prevent the default value from not taking effect for other reasons.

## ● 右剪刀夹子安全位置

### Right clip position(Safety position of right scissor and clamp)

单位：脉冲

Unit: Pulse

范围：-100 - 100

Scope: -100 - 100

设定纱嘴停放纱出专用“组 8”右侧纱出停放位置以此为参考零位。

Set the special “Group 8” for yarn out after the yarn feeder stops. The right yarn out stopping position uses this position as the reference zero position.

编纂：浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

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Shen Guolong, Kuang Yue, Wang Yupeng

用卷尺、钢皮尺等计量器具测量针板最后 1 针与剪刀夹子装置的安全距离，输入。

Measure the safety distance between the last needle of the needle plate and the scissor and clamp device with measuring instruments such as tape measure and steel tape measure, and enter it.

其余同 10 左剪刀夹子安全位置。

The rest is the same as 10 Safety position of left scissor and clamp .



原点修正主要是为了解决按三角零位传感器复位后，其余相应工位有偏差问题。

The origin amendment is mainly to solve the deviation problem of other corresponding stations after zero position sensor resetting based on triangle.

- **定位**

- Positioning**

设置系统参数时，需要当前针位置来导入数值的情况下，可用定位来导入当前针位置数值

When setting system parameters, positioning can be used to import the values at the current needle position if it is required to import values based on the current needle position.

## 9. 步进三角修正

### CAM Adjust(Step cam correction)

三角步进电机、齿轮齿条 H 位工位控制机构的原点修正。

The origin correction of cam step motor and pinion and rack Position H station control mechanism.

单位：脉冲

Unit: Pulse

范围：-100 - 100

Scope: -100 - 100

## 10. 生克方向设置

### Sinker Direction Setup

设置机头前、后生克机构的复位、工作方向等。

Set the reset and working direction of the front and rear sinker mechanism of the carrier.



新设计的生克复位、工作方向设置采用填表式设置、测试，实现生克以参考原点作相对基准的快速设置。

The reset and working direction of the new sinker mechanism are set and tested in form-filling manner, and sinker should be set quickly with the reference origin as the relative datum.







## 1. 生克数据模式-相对位置/绝对位置

### Sinker data mode - relative position / absolute position

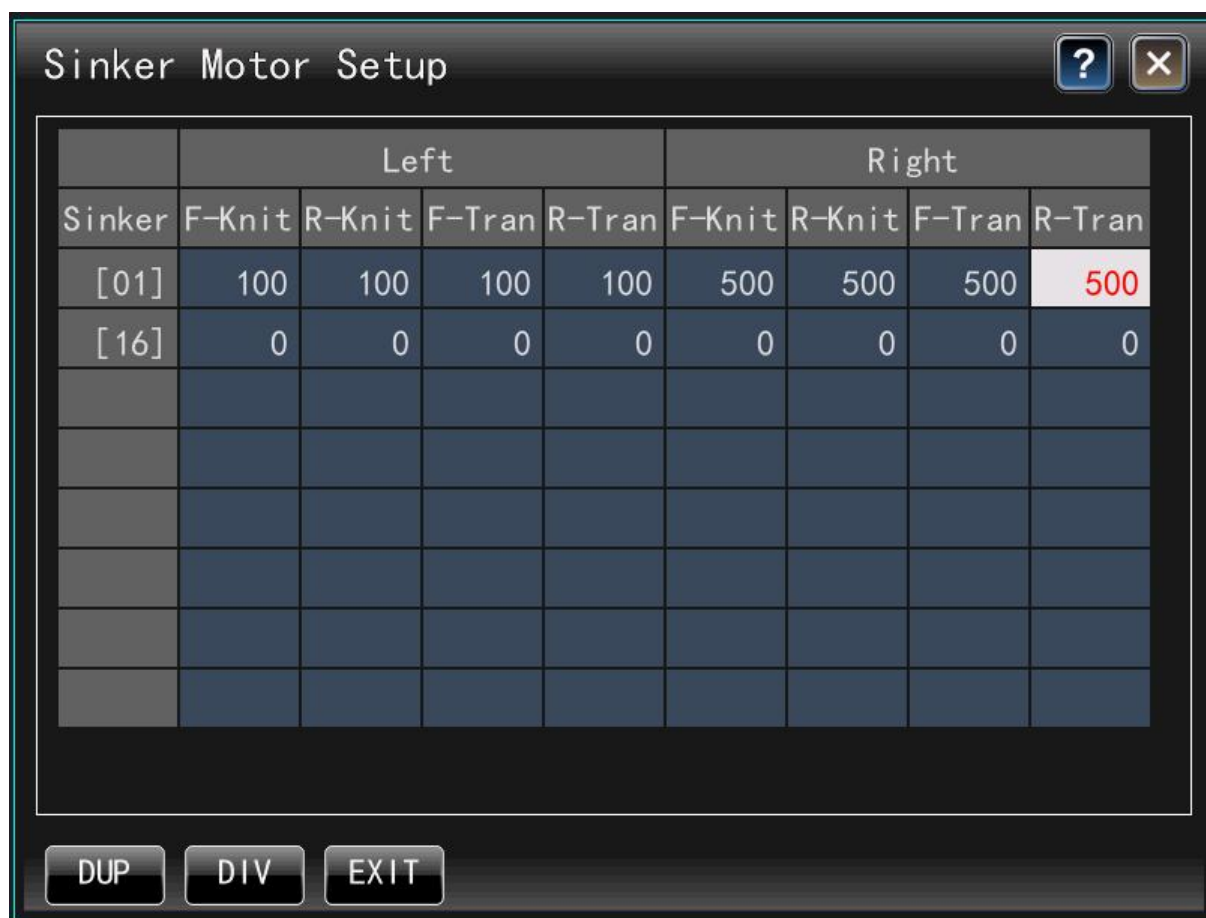
- 绝对位置

#### Absolute position

以生克归零后的传感器零位信号作为设置原点，生克左行、右行工作位置按用户设置的数值执行。

The sensor zero position signal after the sinker returns to zero serves as the origin, and the working position of sinker for moving to the left/right should be subject to the data set by the user.





● **相对位置**

**Relative position**

以前、后沉降片复位值作为生克参考原点(生克不作用位置), 推荐采用相对位置方式的生克电机设置表设置。

The reset value of front and rear sinkers serves as the reference origin of sinker (inactive position of sinker). The relative position manner is recommended for setting of the sinker motor.

因为采用了相对位置方式(对称), 设置左、右行生克数值可以只设置一个方向的然后通过表中复制-全部复制/同类复制/同向复制。

As the relative position manner (symmetric) is adopted, to set the sinker value for moving to the left/right, you can set the value in one direction and then apply Copy/Copy all/Same-type copy/Same-direction copy in the form.

路径: 4-系统参数-生克相关参数-后/前沉降片复位

Path: 4 - System parameters - Sinker-related parameters - Rear/front sinker reset.



## 11. 系统参数初始化

### System parameter initialization

初始化系统参数，根据输入不同的密码选择导入相应的系统参数。

Initialize system parameters and import corresponding system parameters based on different passwords.

系统参数初始化有 2 种类型：

There are 2 types of system parameter initialization:

- 初始化密码 8888，恢复横机调试完成出厂前保存的参数。  
The initialization password 8888 can restore flat knitting machine parameters to those saved before ex-factory commissioning.
- 横机调试完成后建议厂家进行一次参数完整备份至系统 FLASH 以及外部存储介质中的操作，以便横机在终端用户使用中发现部分系统参数设置被不慎修改后进行恢复。  
After flat knitting machine commissioning, manufacturers are recommended to back up all parameters to system FLASH and external storage media, so that terminal users may restore such parameters in case of accidental modification of partial system parameters.
- 初始化密码 1234，恢复恒强系统出厂的默认参数，当主板更换用于其他类型横机或参数因程序升级后出现兼容性问题时采用此系统初始化操作，该操作后全部的参数必须重新调整。  
The initialization password 1234 can restore the factory default parameters of Hengqiang system. This system initialization applies when the main board is changed for other types of flat knitting machines or program upgrade leads to compatibility problems. All parameters must be adjusted again after this operation.
- 一般横机制造厂有随机提供摇床位置修正、度目修正设置等重要参数修正的纸质清单，为减少调试修正工作量可以按表直接输入即可。  
In general, flat knitting machine manufacturers provide attached paper list on correction of major parameters such as the rock position and stitches. You can enter corresponding numbers against the list directly for minimized workload on correction.



系统参数初始化后必须关机重启

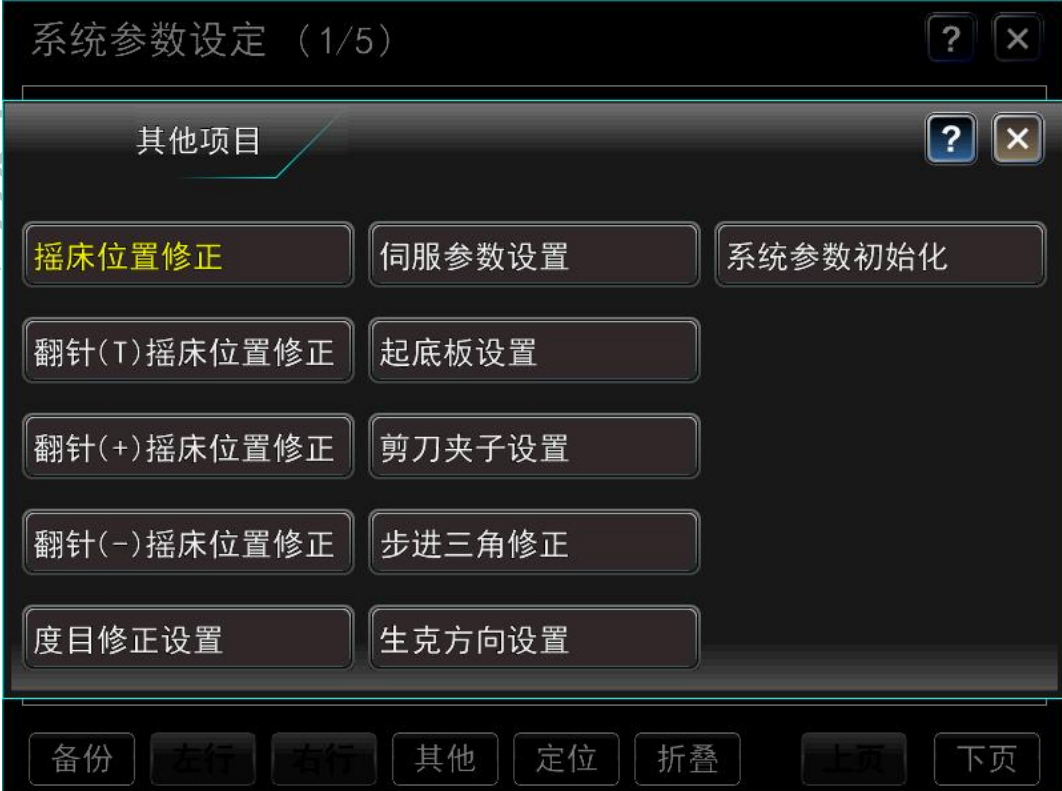
Shutdown restart is a must after system parameter initialization.

### 系统参数设定-下栏功能按钮说明


#### Description of system parameter setting - function button in the lower column

备份 Backup	将横机调试完成后或现有的系统参数设置保存在系统 FLASH 中，以备灾难恢复时需要，恢复级别详见系统参数初始化说明。 Save commissioned system parameter setting or the existing system parameter setting of the flat knitting machine in the system FLASH for disaster recovery. For details about the recovery level, see the description of system parameter initialization.
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<p>左行 Move to the left 右行 Move to the right</p>	<p>按住其中任意一个按钮不放，弹出 3 秒倒计时完成后再弹出确认窗口，按确认后左、右行按钮将激活，此时可以在系统参数设定窗口中按需要方向进行手动点动、持续移动机头。</p> <p>Hold down any of the buttons, and the confirmation window will pop up after a 3-second countdown. The Move to the Left and Move to the Right buttons will be activated after the confirmation. At this time, you can operate manual inching or continuous carrier movement in the system parameter setting window in the direction required.</p> <p>3、4、2+2、3+3 系统、E3 针以下等因机头质量大，某些按针设置手动移动机摩擦阻力过大，通过点动、持续按方向位移至参数设置位置附近从而减轻调试移动负载。</p> <p>For 3, 4, 2 +2, 3 +3 systems, and below E3 needles, etc., because the carrier mass is large, the friction resistance of some needles due to manual movement is large. The needle is moved to near the parameter position through inching and continuous movement so as to reduce the debugging moving load.</p> <p>复位后进入系统参数设定窗口中激活位移按钮后进行同步带齿距校正等取消选针按编织行指令便于直选机型无出针设置。</p> <p>After reset, enter the system parameter setting window, activate the displacement button, and then perform synchronous belt pitch correction and the like to cancel the needle selection according to the knitting row instruction. This facilitates setting without needle out in the direct selection machines.</p>
<p>其他 Others</p>	<p>进入系统参数其他项目子类设置窗口 (11)。</p> <p>Enter the system parameter - other item subclass setting window (11).</p> 



	
<p>定位 Positioning</p>	<p>用于提供按针位置设置的系统参数项获取当前针实际位置值。 It is used to provide the system parameter item set by needle position so as to obtain the actual position value of the current needle.</p> <ol style="list-style-type: none"> <li>1. 针零位</li> <li>1. Needle zero position</li> <li>2. 左系统纱嘴右行零位</li> <li>2. Move to the right to the zero position by the left system yarn feeder</li> <li>3. 右系统纱嘴左行零位</li> <li>3. Move to the left to the zero position by the right system yarn feeder</li> <li>4. 机头左限位</li> <li>4. Left limit of carrier</li> <li>5. 机头右限位</li> <li>5. Right limit of carrier</li> <li>6. 左纱出位置</li> <li>6. Left yarn out position</li> <li>7. 右纱出位置</li> <li>7. Right yarn out position</li> </ol>
<p>折叠 Folding</p>	<p>系统参数分类项标题全局折叠/展开自动切换显示, 也就是当折叠按下后将切换成展开, 按下展开显示后切换折叠显示。</p>

	<p>System parameter category item title supports automatic switch display of global folding/expanding, that is, when Folding button is pressed, it will switch to expand; and when Folding button is pressed, it will switch to folding display.</p> <p>折叠、展开可以针对某一分类项目独立操作，分类项后显示 (XX) 表示该分类项中包含的项目条数，单击 (XX) 后显示 (+) 则该分类项折叠显示，再单击 (+) 则进行展开 (XX)。</p> <p>Folding and expansion can be operated independently for a certain category item. Display (XX) after category item indicates the number of items contained in the category item. Click (XX) to display (+) for folding display of the category item, and then click (+) to expand (XX).</p>
上页 Previous page 下页 Next page	<p>翻页显示。 Page turning display.</p>

## 5. 工作参数

### PAT-Para(Working parameters)

当前花型的工作参数修改、查看等。

Modify and view the working parameters of the current pattern.

工作参数顾名思义就是按花型名称定制的参数，当花型输出至其他统类型机器上时将自动带入。

As the name implies, the working parameters are parameters customized according to the pattern name, which will be automatically brought in when the pattern is output to other machines.



## 5.1 基本工作参数

### System Parameters

#### 1. 花板起始针

##### Needle start(Pattern board starting needle)

范围：1 - 横机总针数。

Scope: 1-Total stitches of flat knitting machine.

设定当前花型 PAT 花版的第 1 针在针床上的绝对起始位置。

Set the absolute starting position of the first needle of the current PAT on the needle bed.

备注：

Note:

当“起始针+PAT 花版最大幅宽 > 横机总针数”时，系统将智能判断后弹出报警提示并给出合理的设置区间。

When “starting needle + maximum width of PAT > total number of stitches of flat knitting machine”, the system will pop up an alarm after intelligent judgment and provide a reasonable setting interval.

当花板起始针设置大于横机总针数时，因逻辑错误不再弹出提示直接无视，原有的设置保持不变。

When the starting needle setting of the pattern board is greater than the total number of stitches of the flat knitting machine, logic error will be omitted without popping up prompt, and the original setting remains unchanged.

花板最大幅宽是按单片、多片展开（展开篇幅）时计算的。

The maximum width of the pattern board is calculated according to the single-piece and multi-piece expanding (expanding knitting).



调试模式起始针设置示例：

Starting needle setting example in debugging mode:

查看编织的起始针以及对选针器的刀头，将起始针设置为多段式选针器的起始刀头、起始提花针脚容易观察选针提前量（针数），PAT 中的前置空针必须排除，例如起始针设置为  $8 * X + 1$ ，其中 X 为多段式的重复段，如有前置空针（0、F 号色码）时需要减去前置空针数，这样才能保证编织的第 1 针能匹配上提花初始针脚上。

Check the starting needle of knitting and the blade head of the corresponding needle selector. The starting needle is set as the starting blade head of the multi-segment needle selector, and the needle selection advance (needle number) of the starting jacquard stitch is easy to be observed. The front empty needles in PAT must be excluded. For example, the starting needle is set to  $8 * X + 1$ , where X is a multi-segment repeated segment. If there are front empty needles (with 0 and F color codes), the number of front empty needles needs to be subtracted to ensure that the first stitch of knitting can match the initial stitch of jacquard.

前置空针数 = A

Number of front empty needles = A

编织起始针 =  $8 * X + 1 - A$

Knitting starting needle =  $8 * X + 1 - A$

参考<选针片排列> = <捺>/<撇>; <选针器刀头排列> = 0/1

Reference <Needle selection piece arrangement> = <Left falling>/<Right falling>; <Needle selector blade head arrangement> = 0/1





图示：[提示]-起始针太大，请重新设置！

Illustration: [Prompt] - Starting needle is too large, please reset it!

## 2. 机头回转距离

### Turning Space(Rotation distance of carrier)

单位：针

Unit: Needle

范围：4 - 50

Scope: 4 - 50

当前编织花型，机头出编织区后的换向距离。

The rotation distance refers to the direction conversion distance after the carrier leaves the knitting zone for the current knitting pattern.

为提高编织效率可以较小换向距离值，但是需考虑山板动作三角结构、编织速度等进行合理设置。

In order to improve knitting efficiency, the direction conversion distance value can be reduced, but the cam structure of knitting plate action and knitting speed should be considered for reasonable setting.

### 三角控制机构电磁铁、步进电机 (+编码器) 性能对比

Performance comparison between electromagnet and step motor (+ encoder) of cam control mechanism

三角控制	电磁铁	步进电机 (+编码器)
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Cam control	Electromagnet	Step motor (+ encoder)
相应速度 Corresponding speed	快 Fast	慢 Slow
回转控制 Rotation control	小 Small	大 Big
工位检测 Station detection	无 None	有 Available
工位动作 Station action	完整 Intact	少 Less
机头箱控制电流 Carrier box control current	3A	2A

备注:

Note:

当花样使用多把纱嘴时, 需要适当调整机头回转距的大小。

When the pattern uses multiple yarn feeders, it is necessary to properly adjust the rotation distance of the carrier.

### 3. 纱嘴下落提前量

#### Yarn down ahead(Advance amount of yarn feeder falling)

设定编织时纱嘴落下携带梭箱(乌斯座)提前的针数, 一般下落最好是在梭箱羊角斜面之上位置。可以通过手推机头观察下落点位置。

Set knitting when the yarn feeder base in advance of the number of needles, which is generally above the inclined space of the yarn feeder base. The position of the falling point can be observed by pushing the carrier by hand.

单位: 针

Unit: Needle

范围: 0 - 100

Scope: 0 - 100

E12 一般设置 20 比较恰当, 过大、过小的数值系统自带智能处理。

E12 is generally set to 20. If the value is set too large or too small, it will be intelligently processed by the system.

纱嘴控制机构目前有传统电磁铁、步进电机, 其中步进电机一般用于简易直选机型上。

At present, the yarn feeder control mechanism includes traditional electromagnets and step motor, among which, the step motors are generally used in simple direct selection models.

	电磁铁	步进电机
--	-----	------

	Electromagnet	Step motor
控制相应速度 Control the corresponding speed	快 Fast	慢 Slow
位置检测 Position detection	无 None	有 Available
宽纱嘴、引塔夏组合 Wide yarn feeder, intarsia combination	任意组合 Arbitrary combination	同个电机不能组合 The same motor cannot be combined

此参数需设置恰当，否则编织时会出现漏带纱嘴的情况。

This parameter should be set properly, otherwise it will result in yarn feeder missing during knitting.

#### 4. 针床撞击使能

##### Shock enabled(Enable needle bed impact)

设置针床撞针传感器检测开、关选择，正常情况下必须打开此检测保护防止出现撞针后损坏大量织针现象，减少经济损失。

Set the needle impact sensor detection to on/off on the needle bed. In general, this detection protection must be enabled to prevent needle impact that may cause damage to a large number of knitting needles, and to reduce economic losses.

切换选择：是/否

Switch between: Yes/No

是：撞针传感器打开。

Yes: The needle impact sensor is turned on.

否：撞针传感器关闭。

No: The needle impact sensor is turned off.

#### 5. 前针床撞针灵敏度

##### F-Sensibility(Needle impact sensitivity of the front needle bed)

范围：1 - 100

Scope: 1 - 100

设定前床撞针传感器触发的灵敏度边界参数，该参数需合理设置防止过高误报频繁或过低造成撞针未报横机损坏。

Set the sensitivity boundary parameter triggered by the needle impact sensor in the front bed, which should be set reasonably to prevent frequent false alarm or do not set the value too low, which may cause flat knitting machine damage due to needle impact.

备注：

编纂：浙江恒强科技股份有限公司-研发中心

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Note:

5.1.4 开启针床撞击使能开启时生效。

5.1.4 This function only works when the needle bed impact is enabled.

## 6. 后针床撞针灵敏度

### B-Sensibility(Needle impact sensitivity of the rear needle bed)

同 5.1.5。

Same as 5.1. 5.

## 7. 主罗拉卷布方式

### M-Roller Mode(Cloth rolling method of main-roller)

设置主罗拉牵拉卷布控制模式，默认连续转，即机头往复编织时主罗拉按设定的速度连续转动卷布。  
Set the cloth rolling control mode pulled by the main-roller, and the default mode is continuous rotation, that is, the main-roller continuously rotates rolling cloth according to the set speed when the carrier reciprocates knitting.

连续转：主罗拉连续转动卷布。

Continuous rotation: The main-roller continuously rotates the rolling cloth.

两头转：主罗拉在机头出编织区后按速度转换脉冲方式转动卷布。

Dual-end rotation: The main-roller rotates the rolling cloth according to the speed conversion pulse mode after the carrier leaves the knitting zone.

两头转模式一般用于幅宽变化很小的附件编织场景，如领子、门襟等。

The dual-end rotation mode is generally used for knitting accessories with little change in width, such as collar and placket.

每个控制模式均为全局控制，目前还未支持一个花型中的混合控制模式，即按行控制。

Each control mode is global control, and the hybrid control mode in the pattern (that is, row control) has not been supported.

## 8. 主罗拉卷布系数

### M-Roller Ratio(Cloth rolling coefficient of main-roller)

设定主罗拉卷布速度系数大小，数值越大卷布速度越快。

Set the cloth rolling coefficient of main-roller; the larger the value, the faster the cloth rolling speed.

范围：1 - 8

Scope: 1 - 8

默认：2

Default: 2

## 9. 自动归零件数

### Auto rst pieces(Number of auto-zeroing pieces)

当编织完自动归零设定的件数后，机头自动进入复位完成后自动进入编织。

When the number of pieces set by automatic zeroing is finished, the carrier automatically enters the knitting after the reset is completed.

每完成一片自动累加‘1’，直到设定件数后开始归零进入下一个循环，自动归零作用主要是为了消除长时间编织时产生的针位置累积误差和横机部分执行机构的防呆滞现象。

‘1’ is automatically accumulated when each piece is completed, which is reset to zero after reaching the number of setting pieces and enters the next cycle. The auto-zeroing function is mainly to eliminate the accumulated error of needle position after long-time knitting and avoid sluggish of some executive mechanisms of the flat knitting machine.

单位：件

Unit: Piece

范围：0 - 10000

Scope: 0 - 10,000

备注：

Note:

设置为‘0’时为无限循环。

When the value is set to ‘0’, infinite loop is performed.

## 10. 单口锁定

### L-SYS Lock(Single-port lock)

设定  $\geq 2$  系统机头，当一个编织行中有完整空系统时强行锁定其中一个指定系统工作，可以缩短机头转矩以提高编织效率，默认有空系统时左、右行自动切换系统编织。

Set  $\geq 2$  system carriers. When there is a complete empty system in the knitting row, one of the designated systems is forced to be locked. This can shorten the carrier torque and improve knitting efficiency. By default, when there is an empty system, the system knitting is automatically switched when moving to the left/right.

锁定系统也用于编织密度要求高的织物场合。

The locking system is also used for knitting fabrics with high density requirements.



图示：单口锁定弹出式选择窗口

Illustration: Single-port lock pop-up selection window

不锁定：不锁定系统进行编织，按 CNT 设定的系统进行编织。

Not locked: Knit without locking the system, but according to the system set by CNT.

左系统：锁定左系统进行编织，大于 2 系统时按空出最后 1 个系统计，例如 3 系统则锁定左系统时表示 1、1/2 系统。

Left system: Lock the left system for knitting. If there are more than 2 systems, the last system that is empty will prevail. For example, if there are 3 systems, locking the left system means to lock the 1 and 1/2 systems.

右系统：锁定右系统进行编织，其余同左系统。

Right system: Lock the right system for knitting, and the rest are the same as the left system.

备注：

Note:

锁定系统时，对一行中有满系统工作时无效。

When locking the system, it does not work when there is a full system working in the row.

## 11. 前安全门开关

### F\_Safe-gate switch

对机器配置中输入信号 (IO) 有前安全门信号开关的选择，便于新机安装调试、正常运行中选择控制。

The input signal (IO) in the machine configuration is provided with the front safety door signal switch, which facilitates the installation and debugging of the new machine and the selection control in normal operation.

新机安装调试时一般选择关闭，防止安全门信号检测装置触发过多报警影响调试等。

When installing and debugging the new machine, the switch is generally disabled to prevent the safety door signal detection device from triggering too many alarms, which may affect the debugging.

目前前安全门检测信号多使用红外检测装置替代早期的传感器信号。

At present, early sensor signals are often replaced by infrared detection devices in the front safety door detection signals.

打开：前安全门信号状态触发后机器停止运行并弹出报警提示。

Enabled: After the signal state of the front safety door is triggered, the machine stops running and an alarm prompt pops up.

关闭：安全门信号检测关闭。

Disabled: The safety door signal detection is disabled.



对于前安全门使用的红外检测装置，程序增加了自动过滤机制防止过多的报警触发，例如夏季飞蛾、飞虫触发等。

For the infrared detection device used in the front safety door, the program adds an automatic filtering mechanism to prevent triggering too many alarms, such as triggering by moths and flying insects in summer.



## 12. 后安全门开关

### B\_Safe-gate switch

对机器配置中输入信号（IO）有增加后安全门信号开关在工作参数中的选择，便于新机安装调试、正常运行中选择控制。

The input signal (IO) in the machine configuration is provided with the rear safety door signal switch in the working parameter, which facilitates the installation and debugging of the new machine and the selection control in normal operation.

打开：后安全门信号触发后机器停止编织并弹出报警提示。

Enabled: After the rear safety door signal is triggered, the machine stops knitting and an alarm prompt pops up.

关闭：安全门信号检测关闭。

Disabled: The safety door signal detection is disabled.

- 前、后安全门信号采用常闭的在检测装置还未安装前的新机调试中一般选择关闭，否则一开机就报警机头无法正常运行。

The front and rear safety door signals are normally disabled. During debugging of a new machine before the detection device is installed, the rear safety door is generally disabled; otherwise, an alarm will be given once the machine is powered on, and the carrier cannot run normally.

- 某些横机制造厂家有信号触发报警提示的更改策略，报警信号触发后机头停车但是不报警提示，等拉杆重新起动机机器时才报警提示。

Some flat knitting machine manufacturers have changed the strategy of signal triggering alarm prompt. After the alarm signal is triggered, the carrier stops but does not give an alarm prompt until the pull rod restarts the machine.



**前、后安全门检测装置、信号是为了生产安全所提供的，请务必在正常生产中启用，生命无价。**

**Front and rear safety door detection device and signal are provided for production safety. Be sure to enable them during normal production to protect your personal safety.**

## 13. 停车罗拉打松

### Stop Rol.Open(Loose the stopping roller)

设置机头停止编织时主罗拉反转打开设定脉冲数。

Set the number of pulses when the main-roller reverses when the carrier stops knitting.

用于当横机停车时间较长时为了防止卷布装置一直作用于织物上造成不可恢复的密度变化，停车时适当释放卷布张力。

When the flat knitting machine stops for a long time, in order to prevent the cloth rolling device from acting on the fabric and causing irrecoverable density change, the cloth rolling pulling force is properly released when stopping.

范围: 0 - 10000

Scope: 0 - 10,000

## 14. 左送纱使能

### Left Carriage(Enable left yarn feed)

力矩、调频调速电机控制的左送纱装置开启、关闭选择。

Select to enable/disable the left yarn feeding device controlled by the frequency modulation and speed regulation motor with torque.

打开: 左侧力矩、调频调速送纱电机开启工作。

Enabled: The frequency modulation and speed regulation motor with left torque starts to work.

关闭: 左送纱关闭不可使用。

Disabled: The left yarn feeding device is disabled and cannot be used.

## 15. 右送纱使能

### Right Carriage(Enable right yarn feed)

力矩、调频调速电机控制的右送纱装置开启、关闭选择。

Select to enable/disable the right yarn feeding device controlled by the frequency modulation and speed regulation motor with torque.

打开: 右侧力矩、调频调速电机开启工作。

Enabled: The frequency modulation and speed regulation motor with right torque starts to work.

关闭: 右送纱关闭不可使用。

Disabled: The right yarn feeding is disabled and cannot be used.

5.1.14、5.1.15 项左、右送纱使能机器配置文件中必须要有相应的映射配置才能生效。

In 5.1.14, and 5.1.15, the left and right feed enabling machine configuration files must have the corresponding mapping configuration to work.

<左输纱器映射> = 3

<Left yarn feeder mapping> = 3

<右输纱器映射> = 5

<Right yarn feeder mapping> = 5

其中的数字编号表示不同的力矩、之山、恒强调频调速等特定方案标识。

Among them, the digital numbers indicate different torque, as well as Zhishan, Hengqiang frequency speed regulation and other specific plan identifications.

## 16. 送纱器启动时间

### Carr. S.Time(Start time of yarn feeder)

设定当送纱器使能-打开，拉杆启动后机头需等待力矩送纱电机先行启动按设定启动延时时间再启动机头运行。

When the feeder is enabled, the carrier is started after waiting for the torque yarn feeding motor to start first according to the set start delay time after the pull rod is started.

机头延时启动主要是为了解决力矩送纱装置对编织纱线引入受阻从而影响编织密度、断纱等问题。  
The delayed start of the carrier is mainly to solve the blockage due to the introduction of torque yarn feeding device, which may affect the knitting density and yarn breakage.

单位：毫秒 (ms)

Unit: Milliseconds (ms)

范围：0 - 50000

Scope: 0 - 50,000

机器配置文件：<输纱器启动时间> = 2000，系统上可以自行修改。

Machine configuration file: <Yarn feeder start-up time> = 2,000, which can be modified on the system.

单位换算：1 秒 = 1000 毫秒

Unit conversion: 1 second = 1,000 milliseconds

典型照相机的最短曝光时间为一毫秒。

The minimum exposure time of a typical camera is one millisecond.

## 17. 屏保启动时间

### Scr-Saver Time(Screen protection startup time)

单位：秒 (s)

Unit: Seconds (s)

范围：0 - 600

Scope: 0 - 600

设定未对显示屏幕进行操作的静止时间。

Set the static time when the display screen is not operated.

备注：

Note:

设置为‘0’时，屏幕常亮‘600 秒’后强制息屏。

When the value is set to ‘0’, the screen will be forced to off after ‘600 seconds’.



部分横机制造厂家设置‘0’则表示为常亮永不息屏

In some machines manufactured by the flat knitting machine manufacturers, when the value is set to ‘0’, it means that the screen is always on and never goes off.

## 18. 二段度目差

### CTUCK Adjust(Two-segment stitch difference)

支持山板具备二段度目控制结构并且安装有可更换二段度目三角，上、下二层度目三角间固定密度差的设置（二段度目不可调整，需更换不同差值的二段度目三角实现），上层密度紧、下层密度松。It is used to set the fixed density difference between the upper and lower two-segment stitch cams on knitting plates supporting a two-segment stitch control structure and equipped with a replaceable two-segment stitch cam (the two-segment stitch cannot be adjusted, and the two-segment stitch cams with different differences need to be replaced). The upper layer density is tight while the lower layer density is loose.

范围：0 - 100

Scope: 0 - 100

备注：

Note:

日本岛精 SHIMA SEIKI 部分机型山板一行同系统编织实现选针式密度控制方式。

In some models of SHIMA SEIKI in Japan, the needle selection control of loop density can be realized by knitting in the same row of the knitting plate and the same system.

普通大横机的成圈三角（度目）共用同一成圈轨迹，因此无法在同行同系统中实现选针式成圈密度控制。

The loop cams (stitch) of common large flat knitting machines share the same loop trajectory, so it is impossible to realize needle selection control of loop density in the same row and the same system.

SHIMA SEIKI 制版色码 17-19[编织-粗目 2 段度目] 等实现选针式控制成圈密度。

SHIMA SEIKI program color code 17-19 [Knitting - Course stitch - 2-segment stitch] can realize needle selection control of loop density.

#### 恒强制版控制色码

#### Control color code of Hengqiang program

色码 Color code	动作描述 Action description
11	前床编织二段度目 Two-segment knitting stitch on the front bed
12	后床编织二段度目 Two-segment knitting stitch on the rear bed
13	前后编织二段度目

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山板编织系统动作组合：

Action combination of knitting plate system;

三角动作电磁铁 1-5 实现控制需求。

Actions 1-5 of the cam electromagnets meet the control requirements.

- 1、2、3 动作电磁铁控制 H 位工位板。  
Actions 1, 2 and 3 of the electromagnets control the Position H station plate.
- 4、5 动作电磁铁控制 A 位工位板。  
4, 5 action electromagnet control Position A station plate.

<编织,空> = <L:0,1,0,0,0,1...R:0,1,0,0,0,1>

<Knitting, empty> = <L: 0, 1, 0, 0, 0, 1... R: 0, 1, 0, 0, 0, 1>

<编织,粗目> = <L:1,0,1,0,1,1...R:1,0,1,1,0,1>

<Knitting, coarse stitch> = <L: 1, 0, 1, 0, 1, 1... R: 1, 0, 1, 1, 0, 1>

A 位选针成圈密度根据运行方向由 4、5 控制下的上层二段密度三角控制。

The loop density of Position A needle selection is controlled by the upper two-segment density cam under the control of actions 4 and 5 according to the running direction.

H 位选针成圈密度因 H 位工位板不作用由下层密度三角控制。

The loop density of Position H needle selection is controlled by the lower density cam because the Position H station plate does not work.

## 19. 最大锁行数

### Max Lock Lines(Maximum number of locked rows)

设定起始行锁行循环行数，到达设定行数后自动解除锁行按 CNT 指令执行。与系统参数-系统基本参数中的‘自动锁行-打开/关闭’配套使用。

Set the number of locked rows in cycle from the starting row. After reaching the set row number, the row locking will be automatically be unlocked according to CNT instructions. It is used in conjunction with “Automatic row locking - Enabled/disabled” in System Parameters-Basic System Parameters.

最大锁行数执行前提条件是自动锁行-打开。

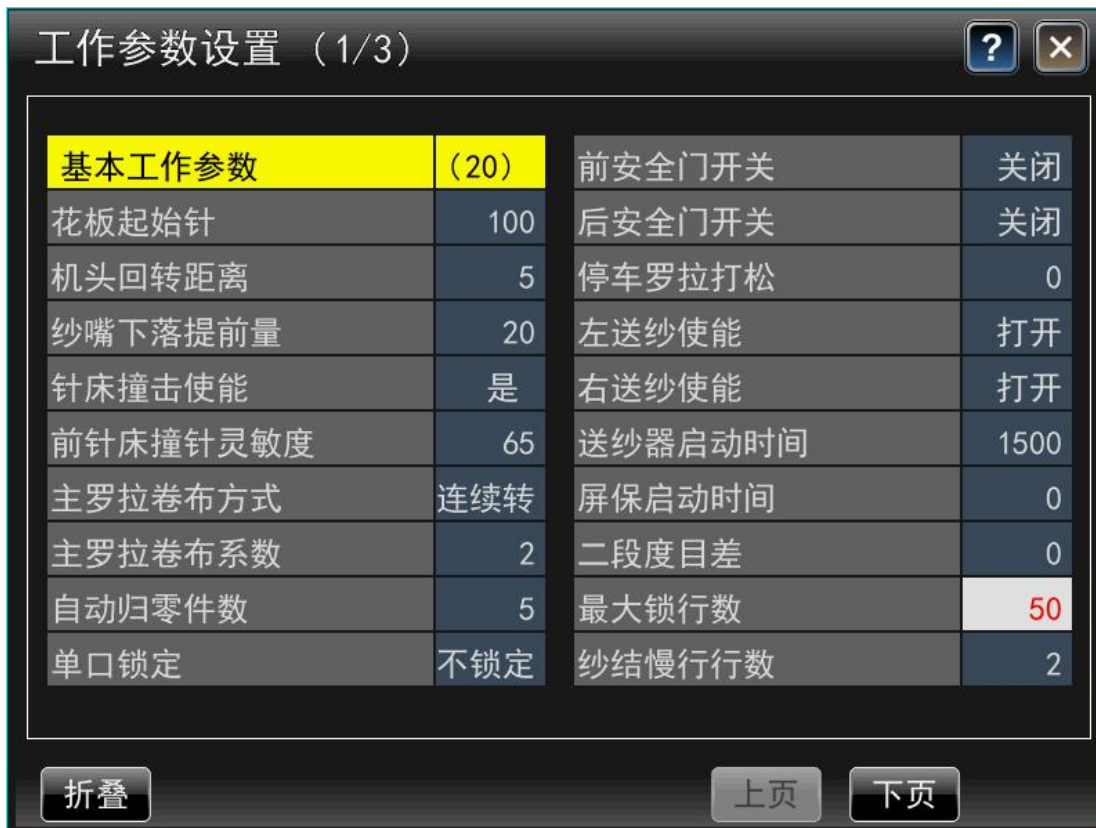
Enabling “Automatic row locking” is the precondition for the implementation of the maximum number of locked rows.

单位：行

Unit: Row

范围：0 - 3000

Scope: 0 - 3,000







## 20. 纱结慢行行数

### Low speed on yarn kick(Number of slow knotting rows)

天线台带有下纱结慢速 IO 控制信号的遇小纱结时，机头自动变为慢速运行，行数由该参数控制。

When the antenna frame has the slow knotting row IO control signal and there is a small knot, the carrier automatically changes to slow operation, and the number of rows is controlled by this parameter.

单位：行

Unit: Row

范围：0 - 20

Scope: 0 - 20

## 21. 收针优化使能

### 2-Tuck optm(Enable “Casting off optimization”)

多个翻接针行数据，行压缩优化功能。

This is used for the row compression optimization for multiple needle reversing row data.

为了更大限度提高编织效率，恒强横机控制系统软件在现有的 1/2/3 系统全触摸上实现了多种收夹方式的行数优化。

In order to improve the knitting efficiency to a greater extent, the control system software of Hengqiang flat knitting machine optimizes the number of rows in various clamping modes on the full touch of existing 1/2/3 system.

程序智能根据山板系统中心距、选针器中心距相关参数、花型两边翻接针之间间隔针数等实现一行中先行侧翻接针完成后，再实施摇床位移实现完成另一侧翻接针。

According to the center distance of the knitting plate system, the center distance of the needle selector, the number of spaced needles between the two sides of the pattern, etc., the program intelligently realizes the needle reversing and connection on one side of a row first, and then performs the needle reversing and connection on the other side through rock replacement.

- **3 行变 1 行**

Change from 3 rows to 1 row

- **4 行变 2 行**

Change from 4 rows to 2 rows

- **5 行变 3 行**

Change from 5 rows to 3 rows

- **6 行变 4 行**

Change from 6 rows to 4 rows

切换选择：关闭/打开

Switch between: Enabled/disabled

打开：实现机头在一行运行中，利用数次摇床移动，完成编织、收夹等功能，减少了双边收针的编织行数。

Enabled: When the carrier is running in one row, the functions of knitting and clamping are completed by moving the rock several times, which reduces the number of knitting rows with double-sided casting off.

关闭：收针优化功能关闭。

Disabled: "Casting off optimization" function is disabled.

机器配置文件可以通过收针优化使能禁用参数关闭该功能。

This function can be disabled by disabling the "Casting off optimization" function in the machine configuration file.

## 5.2 机头速度相关参数 Speed Parameters

### 1. 机头低速 1

#### Main Low Spd1

乌龟图标+拉杆慢动的组合下的机头运行速度。

Carrier running speed under the combination of turtle icon + slow movement of pull rod.

速度设置在‘0 - 机头低速 1’区间内，机头实际速度按设置值。

The speed is set in the range of '0-Low carrier speed 1', and the actual speed of the carrier is set according to the set value.

速度设置大于‘机头低速 1’，机头实际速度按‘机头低速 1’设定执行。

The speed setting is greater than 'Low carrier speed 1', and the actual speed of the carrier is executed according to the setting of 'Low carrier speed 1'.

范围：5 - 30

Scope: 5 - 30



## 2. 机头低速 2

### Main Low Spd2

范围: 5 - 50

Scope: 5 - 50

兔子图标+拉杆慢动组合下机头运行速度。

Carrier running speed under the combination of rabbit icon + slow movement of pull rod.

速度设置在‘0 - 机头低速 2’区间内, 机头实际速度按设置值。

The speed is set in the range of “0-Low carrier speed 2”, and the actual speed of the carrier is set according to the set value.

速度设置大于‘机头低速 2’, 机头实际速度按‘机头低速 2’设定执行。

The speed setting is greater than “Low carrier speed 2”, and the actual speed of the carrier is executed according to the setting of “Low carrier speed 2”.

## 3. 机头复位速度

### Main Reset Spd

范围: 10 - 30

Scope: 10 - 30

设定编织机头原点复位时的移动速度。

Set the moving speed of knitting carrier when the origin is reset.

机头复位速度应根据机头质量越大, 速度设置减小的原则, 防止到零位传感器信号时无法及时停车而到零位信号甚至触碰物理过冲传感器等现象。

The reset speed of the carrier should be based on the principle that the greater the carrier mass, the smaller the speed setting. This avoids the situation that the machine cannot stop when the zero position signal is reached and exceeded, which may cause physical impact on the sensor.

## 4. 机头中速

### Main Mid Spd

乌龟图标+拉杆快动的组合下的机头运行速度。

Carrier running speed under the combination of turtle icon + fast movement of pull rod.

速度设置在‘0 - 机头中速’区间内, 机头速度按设置值。

The speed is set in the range of “0-Medium carrier speed”, and the carrier speed is set according to the set value.

速度设置大于‘机头中速’, 机头速度按‘机头中速’执行。

The speed setting is greater than “Medium carrier speed”, and the carrier speed is executed according to “Medium carrier speed”.

范围: 20 - 60

Scope: 20 - 60

## 5. 机头高速

### Main High Spd

兔子图标+拉杆快动的组合下的机头设置速度的百分比。

The percentage of carrier setting speed under the combination of rabbit icon and fast movement of pull rod.

机头实际运行速度 = 设置值 \* 机头高速

Actual running speed of carrier = setting value \* high carrier speed

机头高速实际线速度 Actual high linear speed of carrier	机头高速 (百分比) High carrier speed (percentage)	机头速度编辑表 Carrier speed editing table
100 x 80	100	80
90 x 80	90	80

范围: 50 - 100

Scope: 50 - 100



一般机器配置中最高线速度 = 1.2 米/秒 (100%)

Maximum linear speed in general machine configuration = 1.2 m/s (100%)

## 5.3 针床加油相关参数

### Oiling Parameters

#### 1. 加油时间

##### Refueling time

单位: 秒

Unit: Seconds

范围: 0 - 200

Scope: 0 - 200

设定机器加注润滑油时长。

Set the lubricating oil refueling time of the machine.

#### 2. 加油间隔

##### Refueling interval

单位: 分

Unit: Points



范围: 1 - 5000

Scope: 1 - 5,000

设定机器加注润滑油的间隔时长周期。

Set the of lubricating oil refueling interval for the machine.

### 3. 油箱容积

#### Fuel tank volume

单位: 升

Unit: Liters

范围: 0 - 100

Scope: 0 - 100

设定油箱存放的油量。

Set the amount of oil in the fuel tank.

## 5.4 度目分布相关参数

### Multi-Step Parameters

#### 1. 度目避让空闲区宽度

##### ISTIX Interval(Width of stitch avoidance and free zone)

非沉针式机型上自定义一行中、同一编织系统工作选针之间的最小安全距离，小于该参数下多次度目分步执行将无法正常工作。

If the minimum safe distance between needle selection in the same knitting system on a custom row in a non-sinking needle type machine is less than this parameter, stitch operation by step for many times will not work.

适用范围: <织针类型> = <非沉针式>

Scope of application: <Knitting needle type> = <Non-sinking needle type>

由机器配置指定，非沉针式一般用于简易直选机型上，当然也有预选+非沉针式特列机型存在。

This is designated by machine configuration. The non-sinking needle type is generally used on simple direct selection models. Of course, there are pre-selected + non-sinking needle type special models.

备注:

Note:

应用于一行中有多个局部编织、翻接针等场景，通过此设置控制密度三角多次执行按针位置入、出 - 度目避让值 - 入、出...，最大限度的控制非沉针式机型旧线圈区域被密度三角压破的风险。

It is applied to scenes where there are multiple local knitting and needle reversing and connection in a row. Through this setting, the density cam is controlled to enter and exit by stitch avoidance value for several times according to the needle position. This controls the risk that the old coil area is crushed by the density cam to

the maximum extent in the non-sinking needle type machine.

## 2. 度目避让值

### ISTIX Value(Avoidance value of stitch)

一行多次分步执行时，从工作度目回退的安全距离。

It is the safe distance retracted from the working stitch when the stitching on one row is executed in multiple steps.

例如：

Example:

工作度目 300，避让设置了 50，则密度三角从 300 后回退到 300-50，下一个分步将从 250 再到 300。  
If the working stitch is 300 and the avoidance value is set to 50, the density cam will retract from 300 to 300-50, and the next step will be from 250 to 300.

## 5.5 起底板相关参数

### STB Parameters

工作参数设置 (1/1)			
基本工作参数	(+)	编织结束行	0
机头速度相关参数	(+)	再次脱圈间隔行数	6
针床加油相关参数	(+)	起底板慢速行数	0
度目分步相关参数	(+)	起底板起头行数	10
起底板相关参数	(15)	起底板上升行数	2
起底板使能	打开	首片罗拉机模式	打开
剪刀使能	打开	卸片剪线行数	8
扣线功能使能	关闭	废纱指定夹子	0
纱嘴打结使能	关闭	禁止全部纱嘴自动纱进	打开
编织起始行	1	起头废纱纱嘴	



## 1. 起底板使能

### STB Enabled

打包升级中机器配置文件<起底板使能> = <打开> 启用后，工作参数中将增加起底板使能-打开/关闭选择项来控制起底板、普通罗拉机切换使用。

After the machine configuration file <Enable pull board> = <Enabled> is enabled during package upgrade, the “Enable pull board -Enabled / Disabled” option will be added in the working parameters to control the pull board and switch between common rollers.

打开：起底板功能生效。

Enabled: The pull board function is enabled.

关闭：起底板功能关闭。

Disabled: The pull board function is disabled.



打开/关闭选择后务必请关机重启，防止切换后部分重要参数更新不完整问题。

Be sure to shut down and restart the machine after selecting “Enable / Disable” to prevent incomplete updates of some important parameters after switching.

## 2. 剪刀使能

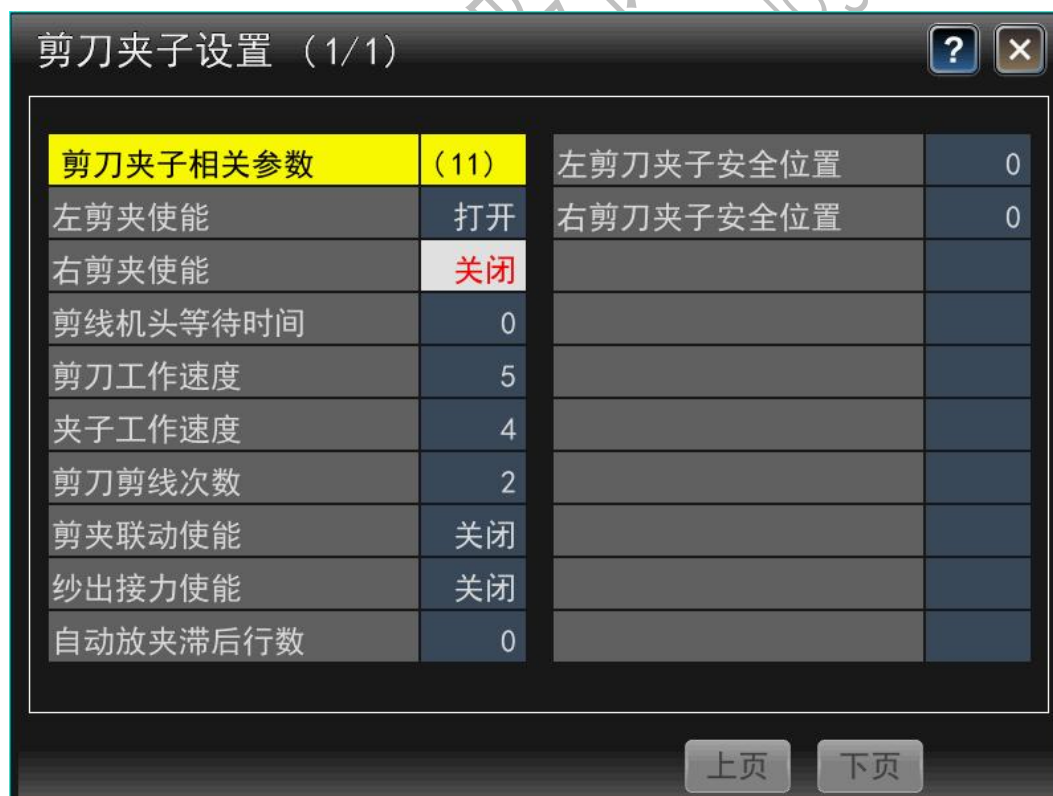
### Clip Enabled

剪刀夹子装置启用、关闭选择，标准配置下机座左、右两侧均配套安装，经济型机型只配置安装在一侧，一般是左侧。

This option is used for enabling or disabling the scissor and clamp. The scissor and clamps are configured on the left and right sides of the lower frame in standard configuration. For economic models, the scissor and clamp is only installed on one side, usually on the left side.

系统支持将一侧剪夹装置作为硬件层面关闭，如图所示右剪夹使能-关闭，关闭后制版花型中该侧的剪夹指令将不再支持。

In the system, the scissor and clamp on one side can be disabled as a hardware layer. As shown in the figure, select to enable right scissor and clamp and disable it. After disabling, the scissor and clamp command on this side in plate-making pattern will no longer be supported.





关闭一侧剪夹使能目的:

Purpose of disabling the scissor and clamp on one side:

1. 经济型机型只安装一侧装置需要（一般安装在左侧）。

For economic models, it is only required to install the scissor and clamp on one side (usually on the left side).

2. 一侧剪夹装置临时故障检修关闭，防止开机检测报警。

The scissor and clamp on the one side is disabled during temporary troubleshooting to prevent power-on detection and alarm.

打开：剪刀功能生效。

Enabled: The scissors function is enabled.

关闭：剪刀功能关闭。

Disabled: The scissors function is disabled.



工作参数中的剪刀使能-关闭将屏蔽全部的剪夹指令。

After disabling the “Enable the scissors” option in the operating parameter, all scissor and clamp commands will be shielded.

### 3. 扣线功能使能

#### Yarn-Hold Enabled(Enable the thread fastening function)

起底板使能-打开、剪刀使能-关闭（无剪夹装置）编织落布结束后，在编织下一片起底板上升前主罗拉打开状态时可能造成纱嘴中的纱线反弹所做的工艺改进措施。

Enable the pull board-Enabled, Enable the scissors - Disabled (without a scissor and clamp device): This process is improved to resolve the issue that the yarn in the yarn feeder may rebound if the main-roller is enabled after the knitting cloth falling ends and before the next knitting pull board is lifted.

扣线的作用就是将一侧的全部纱嘴拧在一起防止纱线分散。

The thread fastening function is to tighten all yarn feeders on one side together to prevent yarn dispersion.

切换选择：打开/关闭

Switch between: Enabled / disabled

打开：扣线功能启用。

Enabled: The thread fastening function is enabled.

关闭：扣线功能关闭。

Disabled: The thread fastening function is disabled.

#### 备注：

##### Note:

- 扣线使用时纱嘴数量必须大于等于 2 把（含左、右侧）。  
The number of yarn feeders must be greater than or equal to 2 (including left and right sides) when using the thread fastening function.
- 扣线模式将编织起始行根据左、右侧初始纱嘴情况进行编织起始行拆解分段完成扣线功能，只有 1 侧纱嘴拆分 2 段，2 侧均有纱嘴拆分 3 段。  
In the thread fastening mode, the knitting start row is disassembled and segmented according to the initial yarn feeders on the left and right sides to complete the thread fastening function. Only the yarn feeder on one side is split into two segments, while the yarn feeders on both sides are split into three segments.
- 使用扣线功能时，工作参数设置中‘剪刀使能’必须关闭，扣线模式用于机器没有安装剪刀夹子机构的经济型机种上。  
“Enable scissors” must be disabled in the operating parameter settings when using the thread fastening function. The thread fastening mode is used on economic models which are not installed with a scissor and clamp mechanism.
- 编织起始行必须是前、后有编织的组织，一般只用于罗纹起头时使用，起始单面织物目前不支持使用扣线模式完成扣线压纱等。  
The knitting start row must be an tissue with knitting in the front and rear parts, which is generally only used at the beginning of rib. At present, for starting single-sided fabrics, the thread fastening mode is not supported to complete thread fastening and chopping.
- 织片之间有扣线后的连接线，因无剪夹装置故需人工进行剪切。  
Connecting rows with fastening threads between woven pieces need to be cut manually due to a lack of



scissor and clamp.

示例:

Example:

起底板使能-打开 / 剪刀使能-关闭 / 扣线功能使能-打开

Enable pull board-Enable / Enable scissors-Disable / Enable thread fastening function-Enable

纱嘴: 左侧 3 把

Yarn feeders: 3 pieces on the left

1. 除编织起始行外其余纱嘴全部踢入起始行编织区内, 宽度按前、后 1 针, 纱嘴停放点按组 7。  
Except for the knitting start row, all other yarn feeders are kicked into the knitting zone of the start row. The width is 1 needle before and after, and the stopping point of yarn feeder is group 7.
2. 编织起始行前、后第 1 针, 停放点控制版组, 一般是组 1。  
Knit the first needle before and after the start row, the stopping point is according to the plate-making group, which is generally Group 1.
3. 全部纱嘴踢出编织区外, 除起始行纱嘴外其余按纱嘴首次使用行位置停放, 纱停控制版组, 其中优化方案每系统踢出纱嘴按最多 2 把, 智能判断电磁铁纱嘴、电机纱嘴规则。  
All yarn feeders are kicked out of the knitting zone. Except for the yarn feeder in the start row, the rest are placed according to the row position when the yarn feeder was used for the first time, and the stopping point of yarn is according to the plate-making group. In the optimized scheme, up to 2 yarn feeders are kicked out of each system, and the rules of electromagnet yarn feeders and motor yarn feeders are determined intelligently.
4. 起始行纱嘴编织余下的编织宽度。  
Remaining knitting width after knitting of the start row yarn feeder.

## 4. 纱嘴打结使能

### Yarn-Knot Enabled

纱嘴打结主要用于普通罗拉机花型在钢丝起底板、无剪夹装置机型上在结束行前将全部纱嘴再次汇集在一起进行集中织入封口纱编织行处理, 落布结束后整体随织物下落。

Yarn feeder knotting is mainly used for common roller machine patterns. Before end rows on the wire pull board and models without a scissor and clamp, all yarn feeders are gathered together again for centralized weaving into the sealing yarn knitting row, and the whole product falls with the fabric after the cloth is dropped.



纱嘴打结使能、扣线功能使能二者只能选择 1 种, 不能同时启用。

Only one can be selected between enabling yarn feeder knotting and thread fastening functions, which cannot be enabled at the same time.

打结步骤

编纂: 浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

沈国龙, 匡越、王宇鹏

Shen Guolong, Kuang Yue, Wang Yupeng

#### Knitting step

打结行插入到裁剪结束行前第 4 行。

Insert the knotting row into the fourth row before the cropping end row.

第 1 步，除结束行编织纱嘴外，已编织完成纱嘴再次空踢入编织区，按编织宽度 5 针（5 针 F 号色码）停放，停放点按组 7 设置。

Step 1: except for the knitting yarn feeders in end rows, kick the yarn feeder after knitting into the knitting zone again, which is placed according to the knitting width of 5 needles (F color code of 5 needles), and set the stopping point to Group 7.

第 2 步，临近结束行纱嘴编织 2 行 5 针宽度 1\*1 鸟眼组织对空踢入纱嘴做压纱处理。

Step 2: near the end row, knit 2 rows of 1×1 bird-eye tissue with a 5-stitch width, and kick the tissue into the yarn feeder for chopping.

第 3 步，除结束行纱嘴外的空踢入纱嘴交替做 1\*1 鸟眼组织出编织区，即 1 把纱嘴编织前 1、3、5 后 2、4、另 1 把做前 2、4 后 1、3、5，如此交替编织，打结完成出编织区后按其纱嘴初始位置停放。

Step 3: expect for yarn feeders in the end row, kick yarn feeders of the 1×1 bird eye tissue alternately out of the knitting zone, that is, one yarn feeder knits the first 1, 3, 5, followed by 2, 4; and the other one knits the first 2, 4, followed by 1, 3, 5. After such alternative knitting, tie knots and place it according to the initial position of the yarn feeder after leaving the knitting zone.

第 4 步，1\*1 后床分别针翻到前床完成打结工艺。

Step 4: turn the 1×1 back knitting to the front knitting respectively to complete the knotting process.

两侧有纱嘴时，等一侧翻针完成后开始执行另一侧纱嘴的打结处理。

When there are yarn feeders on both sides, knot the yarn feeder on the other side after turning over the needle on one side.

#### 注意事项

##### Notes

行裁剪掉纱嘴不参与打结。

Yarn feeders cut from rows are not involved in knotting.

落布检测使能-打开，打结时最后等落布罗拉转动时间结束，主罗拉打开完成后再进行织物检测。

With the “Enable fabric detection” function enabled, wait for the end of fabric roller rotation time when knotting, and then carry out fabric detection after the main-roller is enabled.

落布罗拉转动时间结束后主罗拉需及时打开便于织物带线脱落。

After the fabric roller rotation time ends, it is required to timely enable the main-roller to help the fabric strip line fall off.

## 5. 编织起始行

### Knit Start Page

单位：行

编纂：浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

沈国龙，匡越、王宇鹏

Shen Guolong, Kuang Yue, Wang Yupeng

Unit: Row

普通罗拉机花型行裁剪，用于跳过普通花型开始的废纱行，进入无废纱编织起始行。

In common roller patterns, this row cutting is used to skip the waste yarn row at the beginning of common pattern, and enter the start row without waste yarn knitting.

## 6. 编织结束行

### Knit End Page

单位：行

Unit: Row

普通罗拉机花型行裁剪，用于跳过普通花型结束时的废纱行。

In common roller patterns, this row cutting is used to skip the waste yarn row when ending common patterns.

当通过系统实施行裁剪后需注意结束行纱嘴能否回到初始位置，系统为防止此类行裁剪后纱嘴位置问题自动增加了按最后编织行选针数据再增补一行编织至纱嘴初始位置。

After cutting rows through the system, it is necessary to check whether the yarn feeder in the end row can return to its initial position. In order to prevent yarn feeder position issues after this kind of row cutting, the system automatically adds one row of knitting to the initial position of yarn feeder based on needle selection data of the last knitting row.

## 7. 再次脱圈间隔行数

### Unhook-2 Pages (Number of interval rows of second knocking over)

单位：行

Unit: Row

设定预勾线圈首次脱圈与再次脱圈的间隔行数。

Set the number of interval rows between the first knocking over and the second knocking over of the pre-hook loop.

预勾编织脱圈一次有可能仍有未脱圈线圈存在，通过再次脱圈将剩余线圈脱圈。

There may still be loops that are not knocked over after one pre-hook knitting knocking over, and another knocking over is required to knock over remaining loops.

由于预勾线圈与预勾相邻线圈脱圈后容易造成破洞，因此第一次预勾编织与编织行相邻 1 针线圈脱圈时保留等再次脱圈再脱掉。

Because it is likely to appear holes after knocking over of the pre-hooked loop and the pre-hooked adjacent loop, it is necessary to reserve the first pre-hooked knitting and the loop adjacent to the knitting row during knocking over, and then knock over it in the next time.

预勾留 1 针判断：

Reserve 1 needle during pre-hooking:

- 大于零则首次脱圈时预留 1 针，等再次脱圈时执行。

If the number is greater than zero, it is required to reserve 1 needle during knocking over for the first time, and then knock over it in the next knocking over.

- 等于零则不预留直接执行脱圈。

If the number is equal to zero, it is not required to reserve. It is acceptable to perform knocking over directly.



新近修改

Newly revised

当再次脱圈间隔行数生效后，如同有轨道纱嘴使用为防止出现纱嘴停放位置发生干涉，第一次纱嘴停放位置就按该纱嘴初始位置。

When the number of spacing rows for re-knocking over takes effect, it is as if a rail yarn feeder is being used. To prevent interference in the yarn feeder stopping position, the first stopping position of the yarn feeder is the initial position of the yarn feeder.

## 8. 起底板慢速行数

### STB Slow Pages (Number of slow-speed rows of the pull board)

单位：行数

Unit: Number of rows

速度段：29

Speed segment: 29

设定起底板从首行至慢速行数间使用第 29 固定段速度设定值，一般该速度段数值设置较小便于顺畅编织起始组织行。

Set to use the 29th fixed segment speed setting value from the first row to the slow number on the pull board. In general, the value of this speed segment is set to be small to facilitate smooth knitting from the starting row.

慢速行数包含程序自动插入行，如预勾编织、纱嘴空踢等。

Slow rows include automatic insertion of rows by programs, such as pre-hook knitting, yarn feeder empty kicking and so on.

## 9. 起底板起头行数

### STB Zero Pages (Number of starting rows on the pull board)

单位：行数

Unit: Number of rows

起底板拉力段：29

Tension section of pull board: 29

编织起始行到设定行之间，起底板罗拉拉力固定使用第 29 段设置值。

From the starting knitting row to the set row, use the 29th segment speed setting value for the roller pull force on the pull board.

该设置项用于控制起头编织的前若干行使用同一拉力控制防止因 CNT 各控制段拉力变化造成织物牵拉中破洞产生，需根据花型的组织结构合理选用。

This setting item is used to control the first several rows of knitting to use the same pull force. This prevents the hole in the fabric pulling caused by the pulling force change of each control section in CNT, which should be reasonably selected according to the stitch structure of the pattern.

备注：

Note:

起底牵拉前 2 行为防止穿线钢丝结构起头密度紧直接按 CNT 控制段拉力执行容易产生牵拉破洞问题，现采用起底板牵拉电机刹车、停止牵拉控制方式，该控制方式同样适用现有全部起底板牵拉电机类型（力矩、步进、伺服电机等）。

The first two actions of pulling on the pull board prevent too tight starting density on the threading wire structure. If the pulling force is directly applied by the CNT control segment, it is likely to cause holes. A such, the control mode of pulling motor stopping and pulling stopping are used, which also apply to all existing types of pulling motors (torque, step, servo motor, etc.) on the pull board.

起底板起头行数按 CNT 行计数，过滤由程序自动插入的行（预勾编织、压纱、纱进纱嘴接力等）。The number of rows starting from the pull board is counted according to CNT rows, and the rows automatically inserted by the program (pre-hook knitting, chopping, successive yarn feeding into the yarn feeder, etc.) are filtered.

默认：0（行）

Default: 0 (rows)

‘0’表示不启用，大于‘0’按设置行参数执行。

‘0’ means that this function is not enabled; if the value is greater than ‘0’, it will be executed according to the set row parameter.

## 10. 起底板上升行数

### STB-Top Pages(Number of rising rows on the pull board)

花板从编织起始行计，设定起底板上升挂布行。

For patterns, set the rising and hanging row on the pull board from the knitting start row.

自定义起底板上升行可以根据花型特点，更好的控制起头编织行的精密度需求等。

Customized rising row on the pull board can help control the precision requirements of starting knitting row according to the pattern characteristics.

## 11. 首片罗拉机模式

### 1st-piece-STB Disabled(First-piece roller machine mode)

起底板使能-打开，机头复位完成后第 1 片按普通罗拉机模式编织，连续编织至第 2 片时才切换启用起底板模式编织。

With “Enable pull board” is enabled, after resetting the carrier, knit the first piece based on common roller machine mode, and switch to the pull board mode for knitting when the continuous weaving reaches the second piece.



每复位一次后第 1 片编织均按普通罗拉机模式执行。

After each reset, the first piece is knit according to the common roller machine mode.

打开：首片罗拉机模式生效

Enabled: First-piece roller machine mode is enabled.

关闭：首片罗拉机模式失效

Disabled: First-piece roller machine mode is disabled.

## 12. 卸片剪线行数

### Drop-Cut Page(Number of unloading and row cutting rows)

单位：行

Unit: Row

范围：0 - 4

Scope: 0 - 4

设定执行由程序接管的卸片行编织中指定的行数后剪刀剪线，而非最后纱嘴纱出后直接夹线、剪线防止纱线反弹至卸片区域造成卸片不干净。

Cut the thread with scissors after setting the number of rows specified in the unloading row knitting taken over by the program, instead of clamping the thread directly after the yarn is released from the final yarn feeder. This prevents the yarn from rebounding to the unloading area and avoids unclean unloading.



此情况下需将剪夹联动关闭。

In this case, it is required to disable the scissor with clamp.

## 13. 废纱指定夹子

### Waste Yarn Clip(Set the clamp for waste yarns)

设定废纱行编织时指定使用的夹子。

Set the clamp for knitting waste yarn rows.



## 14. 禁止全部纱嘴自动纱进

### Disable YiYo Mode(Prohibit automatic yarn in of all yarn feeders)

打开：需工作的纱嘴参加编织时直接从针板两侧带入。

Enabled: Insert the yarn feeders involved in knitting directly from both sides of the needle plate.

备注：该方式需由制版对纱嘴做预纱进处理，否则可能有因起针点等原因造成无法正常垫纱。

Note: In this mode, the yarn feeder needs to yarn in advance by plate making, otherwise, yarn padding may fail due to needle starting points and other reasons.

关闭：纱嘴执行自动纱进。

Disabled: The yarn feeder will automatically feed in yarns

## 15. 起头废纱纱嘴

### Waste Yarns(Starting waste yarn feeder)

普通花型行裁剪剔除开始编织的废纱纱嘴，后续的相邻纱嘴为编织起始行。

During common pattern row cutting, it is required to eliminate the waste yarn feeders at the beginning of knitting, and the subsequent adjacent yarn feeder will be the knitting start row.





废纱纱嘴在弹出的起头废纱纱嘴选择中可以指定数把纱嘴号。

Waste yarn feeder can specify several feeder numbers in the pop-up starting waste yarn feeder option.

编织起始行、起头废纱纱嘴、自动去除恒强制版废纱纱嘴度目段等设定，最终目的是定位真正的编织起始行。数个条件只能选择其中之一。

The settings include knitting start row, starting waste yarn feeder, automatic removal of constant forced waste yarn feeder's stitch segment. The ultimate goal is to locate the real knitting start row. Only one of several conditions can be selected.

在填入废纱使用的相应纱嘴后，由程序自动计算并在编织起始行、编织结束行中填入去除废纱行后的花版行。

After filling in the corresponding yarn feeder used by waste yarn, the program will automatically calculate and fill in the flower plate row after removing the waste yarn row in the knitting start row and the knitting end row.

## 6. 机头测试

### Head Test

#### 6.1 选针器测试

##### Needle selector test

点击选针器测试框，按相应数字进行测试。选针器摆片有两种状态（摆上、摆下），连续点击同一数字时，测试项图标根据摆片状态对应凹、凸状态（不同颜色）显示。

Click on the needle selector test box, and test according to the corresponding numbers. The actuator of the needle selector has two states (up and down). When the same number is clicked continuously, the test item icon is displayed in concave and convex states (in different colors) corresponding to the actuator state.

备注：

Notes:

- 1、当图标状态为凹下（灰色）时，选针刀片摆上，处于选针状态。  
When the icon state is concave (gray), the needle selection blade is up, indicating a needle selection state.
- 2、当图标状态为凸出（墨绿）时，选针刀片摆下，处于无选针状态。  
When the icon state is convex (dark green), the needle selection blade is down, indicating a non-needle selection state.
- 3、点击自动测试，选针器按摆片顺序依次测试。  
Click Automatic Test, and the needle selector will test in turn according to the actuator order.

#### 6.2 度目电机测试

##### Stitch motor test

测试步进电机控制的度目机构。

Test the stitch mechanism controlled by step motor.

测试范围：0~设定度目最大值

Test scope: 0 ~ Set the maximum value of the stitch

点击自动测试，度目电机按照 0~最大值~0 进行反复测试

Click Automatic Test, and the stitch motor will be tested repeatedly from 0 to maximum value and to 0.

#### 6.3 三角电磁铁测试

##### Cam electromagnet test

测试双向磁保持电磁控制的编织三角执行机构。

Test the knitting cam actuator controlled by the electromagnet with bidirectional magnetic holding.

备注:

Note:

- 1、 测试按键“1”：测试左接针压片功能。（如果编织中输入吊目指令，它会缩回停止作用）  
Test key “1”: Test the left needle pressing piece function. (If the tuck instruction is input during knitting, it will retract and stop working.)
- 2、 测试按键“2”：测试吊目压片的功能。（如果有放松 2 度目等指令输入，它摆至 A 位以上停止作用）  
Test key “2”: Test the tuck pressing piece function. (If relaxing 2 stitch and other instructions are input, it will swing to above Position A and stop working)
- 3、 测试按键“3”：测试右接针压片功能。  
Test key “3”: Test the right needle pressing function.
- 4、 测试按键“4”：测试左第二段度目压片。  
Test key “4”: Test the left second-segment stitch pressing piece.
- 5、 测试按键“5”：测试右第二段度目压片。  
Test key “5”: Test the right second-segment stitch pressing piece
- 6、 测试按键“6”：测试翻针功能。  
Test key “6”: Test the needle reversing function.

## 6.4 纱嘴电磁铁测试

### Yarn feeder electromagnet test

点击纱嘴电磁铁测试框，按相应数字测试双向磁保持电磁铁控制的换纱机构。纱嘴电磁铁有两种状态（抬起，打下），连续点击同一数字时，测试项图标根据摆片状态对应凹、凸状态（不同颜色）显示。

Click on the yarn feeder electromagnet test box, and test the yarn changing mechanism controlled by the electromagnet with bidirectional magnetic holding according to the corresponding numbers. The yarn feeder electromagnet has two states (lifting and lowering). When the same number is clicked continuously, the test item icon is displayed in concave and convex states (in different colors) corresponding to the actuator state.

备注:

Note:

- 1、 当图标状态为凹下（灰色）时，纱嘴电磁铁休止，处于换梭芯子抬起状态。  
When the icon state is concave (gray), the yarn feeder electromagnet is disabled, and the shuttle changing core is lifted.
- 2、 当图标状态为凸出（墨绿）时，纱嘴电磁铁使能，处于换梭芯子打下状态。  
When the icon state is convex (dark green), the yarn feeder electromagnet is enabled, and the shuttle

changing core is lowered.

- 3、 点击自动测试，纱嘴电磁铁按顺序依次测试。

Click Automatic Test, and the yarn feeder electromagnets will be tested in sequence.

## 6.5 生克电机测试

### Sinker motor test

测试步进电机控制的常开式沉降片控制机构。

Test the constantly-enabled sinker control mechanism controlled by step motor.

## 7. 机器测试

### Machine tests

#### 7.1 输入输出测试

##### I/O Test

##### 7.1.1 输入测试

###### Input test

###### 1. 主电机准备信号

###### Main motor ready signal

主伺服电机上电开机后故障信号返回检测。

After the main servo motor is powered on, the fault signal is returned for detection.

###### 2. 摇床电机故障信号

###### Rock motor fault signal

摇床私服电机上电开机后故障信号返回检测。

After the rock servo motor is powered on, the fault signal is returned for detection.

###### 3. 摇床电机没准备信号

###### Rock motor unready signal

摇床伺服电机上电开机后准备信号返回检测。

After the rock servo motor is powered on, prepare for returning signal for detection.

###### 4. 拉杆快车

###### Fast movement of pull rod

手动拉杆至快动位置，观察快车信号是否显示为“打开”状态。

Manually pull the pull rod to the fast-moving position, and observe whether the fast-moving signal is displayed as “on”.

## 5. 拉杆停止

### Pull rod stopping

手动拉杆至停车位置，观察停车信号是否显示为“打开”状态。

Manually pull the pull rod to the stopping position, and observe whether the stopping signal is displayed as “on”.

## 6. 拉杆慢车

### Slow movement of pull rod

手动拉杆至慢动位置，观察慢车信号是否显示为“打开”状态。

Manually pull the pull rod to the slow-moving position, and observe whether the slow-moving signal is displayed as “on”.

## 7. 紧急停止

### Emergency stop

手动压入紧急停止按钮至急停位置，观察信号是否显示为“打开”状态。

Manually press the emergency stop button to the emergency stop position, and observe whether the signal is displayed as “on”.

## 8. 摇床限位

### Rock limit

## 10. 摇床零位

### Rock zero position

使用小型金属片，接触槽型光耦内测或霍尔开关感应处，观察信号是否显示为“打开”状态。

Use a small metal piece to contact the slot-type opto-coupler internal test or Hall switch induction, and observe whether the signal is displayed as “on”.

备注：

Note:

一般情况下，横机复位完成后，感应铁片接触探头，此时的信号状态应为“打开”状态。

Under normal circumstances, after the flat knitting machine reset is completed, the sensing iron piece will contact the probe, and the signal state at this point should be “on” at this point.

## 10. 针零位信号

### Needle zero position signal

横机左侧，往复手移机头，使固定在机头上的磁钢感应针零位信号处，观察信号是否显示为“打开”状态。

On the left side of the flat knitting machine, move the carrier by hand reciprocally to make it fix on the needle zero position signal position of magnetic steel induction needle, and observe whether the signal is displayed as “on”.



## 11. 主电机编码器

### Main motor encoder

主电机编码器检测。

Test the main motor encoder.

## 12. 键码

### Key code

操作面板按键键码是否正确检测。

Check whether the key code on the operation panel is correct.

## 13. AC Frequency

### AC frequency

主电源频率检测。

Test the frequency of main power supply.

## 14. 左右储纱报警

### Left and right yarn storage alarm

左右侧储纱器报警信号检测。

Test the alarm signals of left and right yarn storage devices.

## 15. 左收线

### Left taking-up

手动左侧挑线弹簧，向外拨动至报警铁丝位置，观察信号是否显示为“打开”状态。

Manually move the left take-up spring outward to the alarm wire position, and observe whether the signal is displayed as “on”.

## 16. 右收线

### Right taking-up

手动右侧挑线弹簧，向外拨动至报警铁丝位置，观察信号是否显示为“打开”状态。

Manually move the right take-up spring outward to the alarm wire position, and observe whether the signal is displayed as “on”.

## 17. 主罗拉报警

### Main-roller alarm

手动遮挡罗拉处传感器，观察信号是否显示为“打开”状态。

Manually block the roller sensor, and observe whether the signal is displayed as “on”.

## 18. 前安全门

### Front safety door

当安全门处于打开状态时，观察信号是否为“打开”状态。

When the safety door is in the open state, observe whether the signal is displayed as “on”.

## 19. 后安全门

### Rear safety door

当后安全门处于打开状态时，观察信号是否为“打开”状态。

When the rear safety door is in the open state, observe whether the signal is displayed as “on”.

## 20. 油量不足请添加

### Add oil (when it is insufficient)

当油壶内油量不足时，观察信号是否显示为“打开”状态。

When the amount of oil in the oil can is insufficient, observe whether the signal is displayed as “on”.

## 21. 起底板防护罩

### Pull board shield

## 22. 左限位

### Left limit

横机左侧，往复手移机头，使固定在机头上的磁钢感应左限位信号处，观察信号是否显示为“打开”状态。

On the left side of the flat knitting machine, move the carrier by hand reciprocally to make it fix on the left limit of magnetic steel induction needle, and observe whether the signal is displayed as “on”.

## 23. 右限位

### Right limit

横机左侧，往复手移机头，使固定在机头上的磁钢感应右限位信号处，观察信号是否显示为“打开”状态。

On the left side of the flat knitting machine, move the carrier by hand reciprocally to make it fix on the right limit of magnetic steel induction needle, and observe whether the signal is displayed as “on”.

## 24. 天线台断纱

### yarn breakage on antenna frame

手动将天线台挑线弹簧往上拨至断纱报警位置，观察信号是否显示为“打开”状态。

Manually move the take-up spring of the antenna frame up to the alarm position for yarn breakage, and observe whether the signal is displayed as “on”.

## 25. 天线台小纱结

### Small yarn knot on antenna frame

手动将天线台小纱结感应片往前拨至报警位置，观察信号是否显示为“打开”状态。

Manually move the yarn knot sensing plate on the antenna frame forward to the alarm position, and observe whether the signal is displayed as “on”.

## 26. 起底板安全门

### Safety door on pull board

起底板安全门信号检测。

Test safety door signal on the pull board.

## 7.1.2 输出测试

### Output test

#### 1. 状态指示灯

##### Status indicator

①红灯：故障停车模式，蜂鸣器发出报警响声。

(1) Red light: In faulty stop mode, the buzzer gives an alarm sound.

②绿灯：正常编织模式，拉杆启动

(2) Green light: In normal knitting mode, the pull rod starts.

③黄灯：运行准备模式，拉杆停车

(3) Yellow light: The running is in the ready mode, pull the pull rod to stop.

#### 2. 伺服使能信号

##### Servo enabled signal

打开：主电机伺服使能打开（锁死）。

Enabled: Main motor servo is enabled (locked)

关闭：主电机伺服使能关闭。

Disabled: Main motor servo is disabled.

#### 3. 机头运行方向

##### Carrier running direction

测试机头运行方向是否正确。

Test whether the carrier runs in the correct direction.

#### 4. 机头运行速度

##### Carrier running speed

范围：0~30

Scope: 0~30

设定机头运行速度。

Set the carrier running speed.

## 5. 主罗拉卷布速度

### Cloth rolling speed of main-roller

测试主罗拉卷布速度。

Test the cloth rolling speed of the main-roller.

## 6. 主罗拉卷布方向

### Cloth rolling direction of main-roller

测试主罗拉卷布转动方向是否正确。

Test whether the cloth rolling direction of the main-roller is correct.

备注:

Note:

该项需和主罗拉卷布速度配合测试，当输入主罗拉卷布速度后，主罗拉将会根据相应的方向、速度自动运行。

This item needs to be tested with the cloth rolling speed of the main-roller. When the cloth rolling speed of the main-roller is input, the main-roller will automatically run according to the corresponding direction and speed.

## 7. 左送纱输出

### Left yarn feed output

测试力矩左送纱器运行是否正确。

Test whether the yarn feeder with left torque runs correctly.

## 8. 右送纱输出

### Right yarn feed output

测试力矩右送纱器运行是否正确。

Test whether the yarn feeder with right torque runs correctly.

## 9. 加油输出

### Refueling output

备注:

Note:

此项只在系统参数中设置了加油功能才显示。

This item is displayed only when the refueling function is set in the system parameters.

## 7.2 起底板测试

### Comb Test

起底板相关位置、传感器信号测试、状态检测等，新机调试时必须对起底板进行正确的位置设置、

测试。

Test the relevant position of the pull board, sensor signal, state detection, etc. When debugging a new machine, it is necessary to set the pull board in the correct position and test it.

建议起底板位置调整好之后进行。：自动测试模式以便查看机械安装、调试是否正确同时对起底板执行机构进行正常磨合处理。

It is recommended to adjust the position of the pull board before testing.: In automatic test mode, users can check whether the mechanical installation and debugging are correct and perform running-in treatment on the pull board actuator.



起底板位置、状态等相关测试请在机头复位完成进行。

Please test the position and state of the pull board after the carrier is reset.

### 起底板测试 ? X

A :起底板挂布	F :复合针挂布	F4:副罗拉关闭	. :自动测试
B :起底板脱圈	F1:复合针脱圈	F5:起底板设置	F6:释放刹车测试
D :起底板安全位	F2:罗拉打开	:罗拉关闭	
E :起底板复位	F3:副罗拉打开	UP:手动上升	DN:手动下降

复合开	关闭	安全位	关闭	副罗拉关	关闭	左拉力检测	关闭
复合关	关闭	罗拉开	关闭	上脱圈位	关闭	右拉力检测	关闭
零位	关闭	红外	关闭	下脱圈位	关闭		
最高位	关闭	副罗拉开	关闭	左限位	打开		

wire: 0



### 7.2.1 A:起底板挂布

#### A: Comb Take Down(Hang cloth on the pull board)

执行起底板从零位到最高位进行挂布动作。

Hang cloths from zero position to the highest position on the pull board.

挂布上升时同时可以检测起底板安全门打开是否顺畅，有否明显噪音等。

When the hanging rises, users can also check whether the safety door of the pull board can be opened smoothly and whether there is obvious noise.

### 7.2.2 B:起底板脱圈

#### B: Comb Release(Knocking-over of the pull board)

复合针机构：复合针到脱圈位传感器位。

Composite needle mechanism: Composite needle to knocking over position and sensor position.

穿线钢丝：钢丝抽丝归零。

Wire threading: The wire withdrawing returns to zero.

当起底板脱圈回升（起底板/剪刀夹子设置->复合针相关参数）设置 > 0，起底板先按回升值向上走，



再执行复合针到脱圈位传感器或钢丝归零。

When the setting for the pull board knocking over and lifting (pull board/scissor and clamp setting-> related parameters of composite needle) is greater than 0, the pull board first moves up based on the lifting value, and then the compound needle moves to the knocking-over position. The sensor or the wire returns to zero.

### 7.2.3 D :起底板安全位

#### D: Comb Safe( Safety position of pull board)

必须先执行 A :起底板挂布 (最高位) 再单击 D :起底板安全位, 起底板从挂布位下降过安全位传感器信号后到安全位。

Be sure to execute Position A: Hang cloth on the pull board (Highest position) and then click D: Safety Position of Pull Board. The pull board will drop from the hanging position to the safety position after passing through the safety position sensor signal.

到达安全位后如安全位传感器信号触发将报‘起底板安全位信号仍有效’报警, 起底板安全位要考虑牵拉挂布后不与编织针发生干涉、牵拉也不能太深、太深容易引起牵拉阻力增加不能到位故障等, 请合理调整安全位位置及安全位传感器信号安装位置。

If the safety position sensor signal triggers after reaching the safety position, it will report the alarm stating that “Safety position signal of the pull board is still valid”. When setting the safety position of the pull board, be ensure that there will be no interference with the knitting needle after drawing off the hanging cloth, and the draw-off should not be too deep. Otherwise, it is likely to cause failure due to insufficient draw-off resistance, for example, the pull board may not reach in place. Please adjust the safety position and the installation position of the sensor signal in the safety position reasonably.

### 7.2.4 E :起底板复位

#### E: Comb Reset

复合针脱圈、钢丝归零, 然后起底板升降电机再执行复位归零, 复位流程必须按穿线板先行复位、归零而后起底板方可复位、归零。

Knock over the composite needle and return the steel wire to zero, and then reset the pull board's lifting motor. The reset process must be resetting the threading plate first, followed by the pull board resetting.

穿线板、起底板升降机构已在各自零位上不再执行。

No resetting is performed if the threading plate and lifting mechanism of the pull board are already at their respective zero positions.

### 7.2.5 F :复合针挂布

#### F: C.Ndl Attach(Composite needle cloth hanging)

复合针机构: 复合针到挂布位。

Composite needle mechanism: Move the composite needle mechanism to the cloth hanging position.

穿线钢丝机构: 钢丝穿丝, 短按点动、长按钢丝连续移动。

Wire threading mechanism: Wire threading: press it once for inching, and press it for a long period of time for

continuous movement.

## 7.2.6 F1 :复合针脱圈

### F1: C.NdI Detach(Composite needle paying off)

复合针机构：单击复合针到脱圈位。

Composite needle mechanism: Click this once to move the composite needle mechanism to the knocking over position.

穿线钢丝机构：单击钢丝归零。

Wire threading mechanism: Click the wire to return to zero.



7.2.5、7.2.6 对于 F :复合针机构挂布、F1 :复合针脱圈测试中顺向、逆向由机器结构以及相关配置决定。

7.2.5 and 7.2.6 For F: Composite needle mechanism's cloth hanging F1: The forward and reverse direction in composite needle mechanism knocking over test is determined by the machine structure and related configurations.

<复合针工作模式> = 1 # 0 => 正转, 1 => 正、反转

<Composite needle operation mode> = 1 # 0 => Forward rotation, 1 => Forward and backward rotation.

## 7.2.7 F2 :罗拉打开

### F2: Roller Open

主罗拉反转打开至罗拉打开修正位置，一般在罗拉打开传感器信号位。

From the position where the "Main-roller reverse rotation" is enabled to the position where "Main-roller amendment" is enabled, which is generally at the position where the roller enables sensor signals.

起底板上升前为防止穿线版与主罗拉发生干涉必须先将主罗拉打开，如未打开则弹出提示 '罗拉未打开' 。

In order to prevent the interference between the threading plate and the main roller before lifting the pull board, be sure to enable the main-roller first. If not, a prompt stating that "Roller is not enabled" will pop up.

## 7.2.8 F3 :副罗拉打开

### F3: Roller2 Open

副罗拉反转打开，该项用于起底板机构安装有辅助副罗拉卷布。

Enable "Sub-roller reverse rotation". This option is used for pull board mechanisms with a sub-roller batch.

## 7.2.9 F4 :副罗拉关闭

### F4: :Rollor2 Close

副罗拉正转关闭，作用同上。

Disable "Sub-roller rotation". The function is the same as above.

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## 7.2.10 F5:起底板设置

### F5: Comb Setup

起底板参数设置快捷入口。

This is the quick setting entrance for pull board parameters.

## 7.2.11 罗拉关闭

### Roller Close

主罗拉关闭。

Disable the main-roller.

只有起底板在脱圈位置以下时方能对主罗拉进行关闭。

The main-roller can be disabled only when the pull board is lower than the knocking-over position.

## 7.2.12 UP:手动上升

### UP: Manually Up

手动控制起底板上升、下降等。

Manually control the pull board to lift and lower.

## 7.2.13 自动测试

### Automatic test

自动测试起底板升降、穿线钢丝（复合针）等动作。

Automatically test the lifting of the pull board and threading wire (composite needle mechanism) and other actions.

自动测试前必须起底板的各个工作位置设置准确。

Before automatic test, be sure to correctly set all working positions of the pull board.

## 7.2.14 DN:手动下降

### DN: Manually Down

手动控制起底板位置下降动作，可以点动。

Manually control the lowering of the pull board position, which can be ignited.

## 7.2.15 释放刹车测试

### Release brake test

## 7.3 剪刀夹子测试

### Cutter and Clip Test

入口路径：机器测试 - 剪刀夹子测试

Entry path: Machine test - Scissor and clamp test

编纂：浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

沈国龙, 匡越、王宇鹏

Shen Guolong, Kuang Yue, Wang Yupeng

全自动电脑横机控制系统操作说明-全触摸

Operating Instructions of Automatic Control System of Computerized Flat Knitting Machine - Full Touch

对安装有夹子、剪刀的机构进行测试、相应剪夹的零位信号检测和状态显示。

Test mechanisms with clamps and scissors, detect the zero position signal of the corresponding scissors and clamps, and display their states.

同时该界面增加了起底板测试、钢丝测试等快捷入口等便于对起底板、钢丝部件进行测试。

In addition, quick entrances for pull board test and steel wire test are added to the interface to facilitate pull board and steel wire tests.

测试项目名称前的前置数字编号、字符、符号等是用于触摸+按键组合屏的快捷按键提示。

The prefix numbers, characters, symbols, and the likes before the test item name are shortcut key prompts for touching + key combination screen.

例如，按数字键 '0' 全部夹子进行夹线动作。

For example, after pressing the number key '0', all clamps will clamp wires.

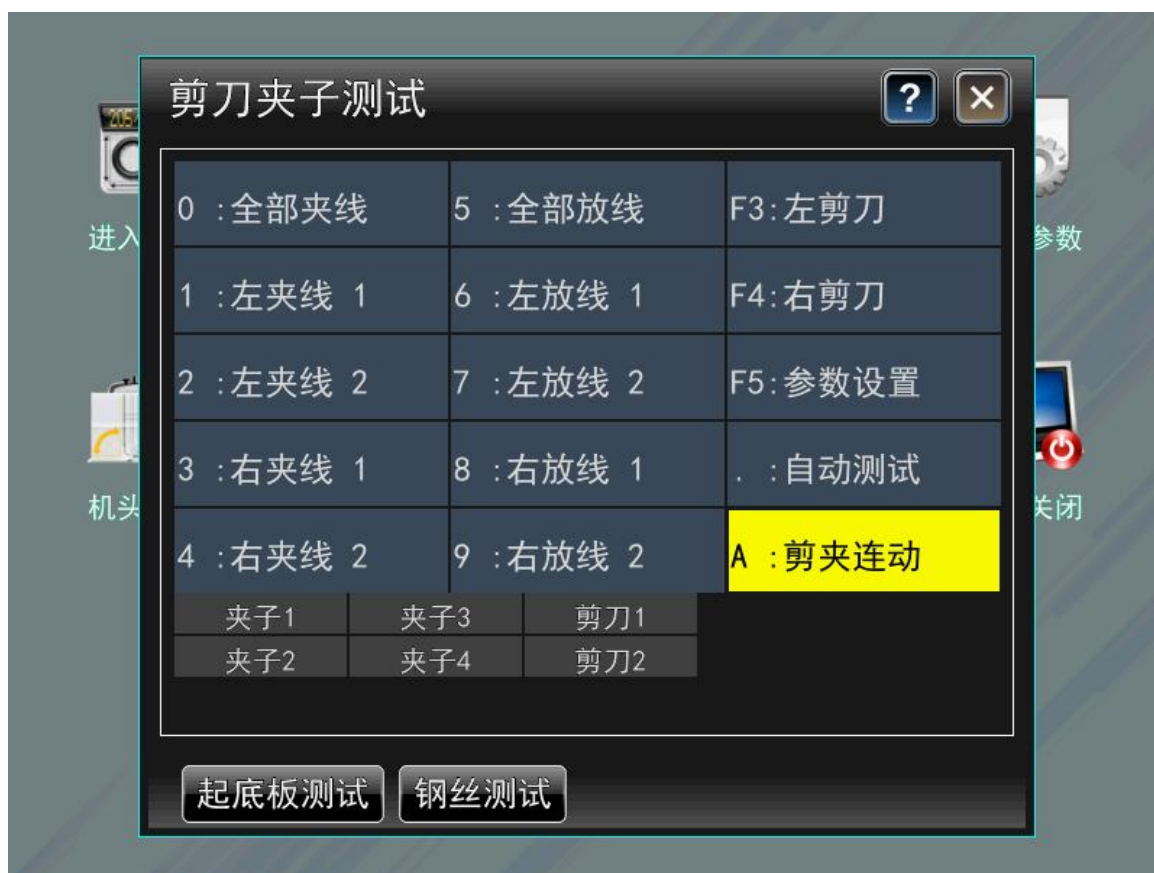
夹子、剪刀配置

Configure scissor and clamp

完整版	左、右两侧均有安装	2 个夹子、1 把剪刀/组 * 2
Complete version	Install them on the left and right sides	2 clamps, 1 pair of scissor / set * 2
经济型	左侧安装	2 个夹子、1 把剪刀/组 * 1
Economic models	Left side installation	2 clamps, 1 pair of scissor / set * 1

剪刀夹子机构可以只配置在无起底板机构的机型上使用。

The scissor and clamp mechanism can only be configured on the machines without the pull board mechanism.





### 7.3.1 0 :全部夹线

#### 0: All Clip

根据机器配套安装情况，所有夹子进行夹线动作，单击1次、执行1次。

All clamps perform one clamping each time by pressing once according to the matching installation of the machine.

测试时需观察每把夹子从零位->夹子开->最高位夹线->零位动作过程中上、下执行是否流畅，有无呆滞、明显晃动等现象。

During test, it is necessary to observe whether the upper and lower execution of each clamp is smooth without dull and obvious shaking in the process of moving each clamp from zero position -> opening clamp -> clamping in the highest position -> acting at zero position.

夹线步进电机速度由系统参数->其他->剪刀夹子设置表中夹子工作速度设置参数决定，速度与数值大小成正比，数值越大速度越快。

The clamping step motor speed is determined by clamp working speed set in "System Parameters -> Others -> Scissor and clamp setting table". The speed is proportional to the value. The larger the value, the faster the speed.

夹线完成后在零位传感器上，夹线过程中因夹线构造原因上升到最高位再到零位时传感器状态有数



次显示。

After clamping, the sensor status will be displayed several times during clamping from the time when it is lifted to the highest position and then returns to the zero position due to clamping structure reasons.

标准 SHIMA 式标配两侧的夹子数量是左、右各 2 把+左、右各 1 把剪刀。

The number of clamps on both sides of the standard SHIMA style is 2 clamps in the left and 2 claps in the right + 1 scissor in the left and 1 scissor in the right.

### 7.3.2 1 :左夹线 1

#### 1: Left Clip 1

左边 1 号夹子夹线动作。

Clamping action of No. 1 clamp on the left.

### 7.3.3 2 :左夹线 2

#### 2: Left Clip 2

左边 2 号夹子夹线动作。

Clamping action of No. 2 clamp on the left.

### 7.3.4 3 :右夹线 1

#### 3: Right Clip 1

右边 1 号夹子进行夹线动作。

Clamping action of No. 1 clamp on the right.

### 7.3.5 4 :右夹线 2

#### 4: Right Clip 2

右边 2 号夹子进行夹线动作。

Clamping action of No. 2 clamp on the right.

### 7.3.6 5 :全部放线

#### 5: All Free

全部夹子放线。

All clamps pay off.

放线：夹子从夹线到打开释放被夹纱线。

Paying off: The clamp releases the clamped yarn from clamping to release.

### 7.3.7 6 :左放线 1

#### 6: Left 1 Free

左边 1 号夹子进行放线动作。

Paying off action of No. 1 clamp on the left.

### **7.3.8 7 :左放线 2**

#### **7: Left 2 Free**

左边第二号夹子进行放线动作。

Paying off action of No. 2 clamp on the left.

### **7.3.9 8 :右放线 1**

#### **8: Right 1 Free**

右边 1 号夹子放线。

Paying off action of No. 1 clamp on the right.

### **7.3.10 9 :右放线 2**

#### **9: Right 2 Free**

右边 2 号夹子放线。

Paying off action of No. 2 clamp on the right.

### **7.3.11 F3:左剪刀**

#### **F3: Left Cutter**

左剪刀进行剪线的动作。

The left scissor cuts wires.

### **7.3.12 F4:右剪刀**

#### **F4: Right Cutter**

右剪刀进行剪线的动作。

The right scissor cuts wires.

### **7.3.13 F5:参数设置**

#### **F5: Parameter Set**

起底板/剪刀夹子设置快捷界面，快速进行相关参数修改等。

Quick interface for pull board/scissor and clamp settings: it is used for quickly modify related parameters.

### **7.3.14 . :自动测试**

#### **. : Auto Test**

左、右两侧夹剪装置自动按序执行夹子归零、放线、夹线、剪刀等动作。

The scissor and clamp devices on the left and right sides automatically perform such actions as clamp resetting, paying off, clamping and scissor action in sequence.

自动测试可以检查剪夹装置的安装情况及对新机构进行磨合。

编纂：浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

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Automatic test can check the installation of the scissor and clamp device and its running-in the new mechanism.

### 7.3.15 A :剪夹联动

#### A: Run Mode

夹子、剪刀联动测试按钮，按下后背景呈黄色高亮则表示测试任意一侧的夹子后剪刀也将自动也配置测试。

Press the “Scissor with clamp” button. If the background is highlighted in yellow, it indicates that the scissor behind the clamp on either side will be automatically configured for test.



正常纱嘴纱出后，夹子夹线后剪刀相应进行剪线，针对部分弹力原料剪线后出现反弹至编织区被编织情况，夹线后再编织若干行后进行剪线动作可有效避免反弹问题。

After normal yarn out by the yarn feeder, the scissor cuts the yarn after the clamp clamps the yarn. However, some elastic raw materials may rebound to the knitting zone after cutting the yarn. Knitting several lines after clamping before cutting the yarn can the rebound problem can effectively resolve this issue.

## 7.4 起底板/剪刀夹子设置-钢丝测试

### STB-Wire Test

入口路径：机器测试-起底板测试-F5:起底板设置-钢丝测试。

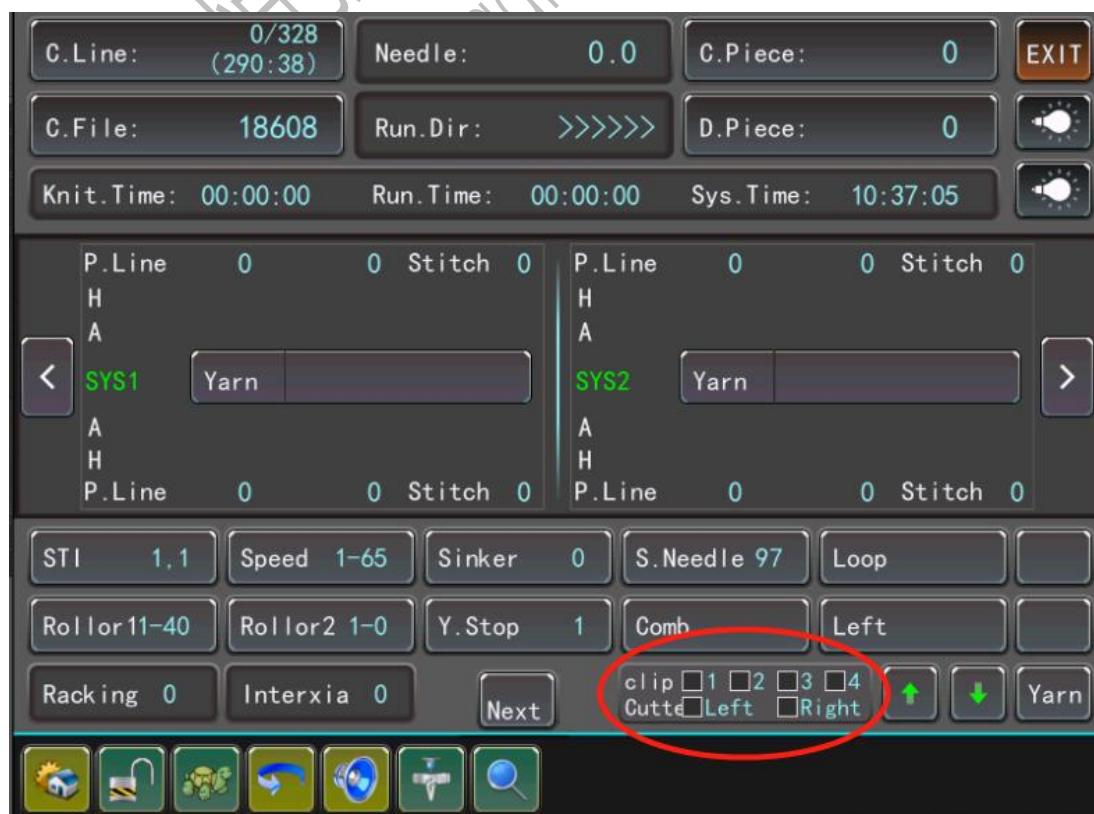
Entry path: Machine test - pull board test - F5: pull board setting - wire test.

快捷入口：

Quick entrance:

运行界面-夹子剪刀图标-钢丝测试

Operating interface - Scissor and clamp icon -wire test





## 7.4.1 钢丝当前位置

### Wire Position

显示穿丝过程中钢丝静态、动态的实际位置，该位置显示以钢丝零位做参照基准。

Display the actual static and dynamic positions of wire during threading. This position display takes the zero position of wire as the reference.

## 7.4.2 钢丝开始行程-对应针数

### Wire Start(Wire start stroke - corresponding needles)

- 根据穿线板结构对钢丝开始行程、钢丝结束行程以及是否有针数裁剪等情况设置对应针数，如果无需针数裁剪则对应针数置 '0'。

Set the corresponding needles for the wire start stroke, wire end stroke, and whether there is needle cutting based on the threading board structure. If no needle cutting is required, set the corresponding number of needle to '0'.

设置项 Setting option	单位 Unit
开始行程、结束行程 Start stroke and end stroke	脉冲 Pulse
对应针数 Corresponding number of needles	针 Needle



### 对应针数

#### Corresponding number of needles

因穿线板的结构导致最大牵拉针数小于系统参数中横机总针数时需裁剪不能工作部分的针数范围便于程序对花型的最大幅宽针数进行拦截防止无效挂布。

Due to the threading board structure, if the maximum number of draw-off needles is less than the total needles of the flat knitting machine set in the system parameters, it is required to cut the number of needles not available for working so that the program can block the number of needles within the maximum width of the pattern to avoid invalid cloth hanging.

对应针数以前针床首、尾针做参照测量基准与之穿线板对应的首、尾穿梳针的距离。

The number of needles uses the first and last needle of the needle bar as the reference and measurement benchmark, which corresponds to the distance with the corresponding first and last combing needle of the threading board.

钢丝开始行程设置：

Set wire start stroke:

点动、手动穿丝至穿线板最后 1 针位置，单击设置完成开始位置设定。

Ignite and manually thread the wire to the last needle of the threading board. Click “Setting” to finish the



start position setting.

穿线板的最后 1 针定义与穿、回丝电机机构安装位置有关，上述是穿丝步进电机以横机操作方向观察安装在右侧，反之则在左侧。

The last needle on the threading board is defined to be related to the installation location of the wire threading and returning motor mechanism. In the above example, the threading step motor is on the right using the flat knitting machine operation direction as the benchmark; otherwise, it is installed on the left.

部分穿线板附件生产厂家的机构可以将穿丝零位传感器手动调整定位在最后 1 针位置上，此时穿丝零位与钢丝开始行程合并在同一位置。

For mechanisms of some threading board accessory manufacturers, the threading zero position sensor can be manually adjust to the last needle. At this point, the thread zero position and the wire start stroke are combined in the same position.

程序将自动对超出该设置位置的花型进行报警提示。

The program will automatically alarm the pattern beyond the setting position.

### 7.4.3 钢丝结束行程-对应针数

#### Wire Finish(Wire end stroke - corresponding number of needles)

穿线钢丝结束行程设置，其中到达位置将根据是否安装了到位信号并启用了送丝到位检查打开等。

Set the threading wire end stroke, in which, the arrival position will be determined based on whether an in-place in-place signal is installed and whether 'Wire Feeding In Place Inspection' is enabled.

安装有到位信号传感器、送丝到位检查-打开后，钢丝结束行程位置将以到位信号状态变化后停止，此时钢丝结束行程设置值必须是大于到位传感器信号触发的位置。

If the in-place signal sensor is installed and 'Wire Feeding In Place Inspection' is enabled, the wire end stroke position will ends at the place where the in-place signal state changes. At this point, the wire end stroke setting value must be greater than the position where the in-place sensor signal is triggered.

安装有到位传感器信号并打开了送丝到位检查，请将钢丝结束行程位置大于到位信号触发后位置 100 左右，其目的是允许少量的送丝打滑，当打滑大于设定的参数值后依然没有触发到位传感器信号将提示报警。

Installed with in-place sensor signal and Enable wire feeding in-place inspection, please put the wire end stroke position of wire greater than the position after the trigger of the in-place signal by about 100, the purpose is to allow slipping of a small amount of wires when feeding. When the number of slipping wire is greater than the set value, and the in-place sensor signal is not triggered, an alarm will be promoted.

穿丝至到位传感器信号触发停止后的位置可以通过钢丝当前位置栏查看，通过当前位置重新修订钢丝结束行程参数值。

The position where the threading reaches the in-place sensor signal position that triggers stopping can be viewed through the view's current position volume. Users can re-modify the parameter value of the wire end stroke through current position.



#### 钢丝结束行程设置:

##### Set wire end stroke

点动、手动穿丝至穿线板的第 1 针往左略多出 1 针左右后，单击设置完成位置设置。

Ignite and manually thread the wire to the place about one needle to the left of the first needle of the threading board. Click “Setting” to finish the position setting.

对应针数根据结构情况进行设置，满针匹配的无需设置。

The corresponding number of needles is set based on structure. If it is full, no setting is required.

### 7.4.4 左安全挂布针

#### L-Safe Count(Left safety cloth hanging needle)

设置左侧挂布安全针数控制起针点安全设置，当起针点小于设置值系统将做提示。

Set the number of needles of cloth hanging on the left side to control the safety setting of the starting point. When the starting point is less than the setting value, the system will prompt.

### 7.4.5 右安全挂布针

#### R-Safe Count(Right safety cloth hanging needle)

设置右侧挂布安全针数控制花型右边界安全设置位置，当起针点小于设置值系统将做提示。

Set the number of needles of cloth hanging on the right side to control the safety setting of the right boundary of the pattern. When the starting point is less than the setting value, the system will prompt.

### 7.4.6 复合针开信号

#### C.N.On(Composite needle enabling signal)

此参数为早期用于复合针机构的穿线板复合针在打开位置的信号状态，扩展至钢丝起底板上表示穿丝到达钢丝结束行程设定位置，信号栏状态显示红色（送丝到位检查-打开）。

This parameter indicated the signal state when the threading board composite needle was enabled. When extended to the wire pull board, it indicates that the threading reaches the set position of the wire end stroke, and the signal bar status is displayed in red (‘Wire Feeding In Place Inspection’ - Enabled).

信号状态显示由是否安装到位传感器信号、送丝到位检查开启等相关。

The signal status display is related to whether an in-place signal sensor is installed, and whether ‘Wire Feeding In Place Inspection’ is enabled or not.

### 7.4.7 复合针关信号

#### CN.Off(Composite needle-related signal)

此参数为早期用于复合针机构的穿线板复合针在关闭位置（挂布勾线）的信号状态，扩展至钢丝起底板上表示穿丝归零后的信号状态。

This parameter indicated the signal state when the threading board composite needle was disabled (cloth hanging and hooking). When extended to the wire pull board, it indicates that the signal state after threading

resets to zero.

## 7.4.8 钢丝位置相关设置-功能按钮

### Settings related to the wire position - Function button

钢丝位置相关设置-功能按钮说明	
Settings related to the wire position - Function button description	
左行 Left row	手动钢丝往左移动，可点动、连续。 Move wire to the left manually, which can be inched and continuous.
右行 Right row	手动钢丝往右移动，可点动、连续。 Move wire to the right manually, which can be inched and continuous.
设置 Set	钢丝开始行程、钢丝结束行程通过设置清零。 Clear wire start stroke and wire end stroke through settings.
微调 Fine tune	调整当前钢丝位置，当需要将钢丝移动到指定位置时因点动操作很难精确控制，通过设置微调预估值到达指定位置的一种方法。 Adjust the current wire position. When it is required to move the wire to a designated place, it is difficult to accurately control it through ignition. As such, users can fine tune an estimated value to reach the designated position. 单击微调设置区，弹出软键盘输入按确认后钢丝位移生效。 Click fine tuning setting area to pop up a soft keyboard. Press “OK” and the wire displacement will work. 单位：脉冲 Unit: Pulse 范围：-200 - 200 Scope: -200 - 200
速度 Speed	定钢丝穿丝的移动速度，此值不易过大否则容易引起穿丝失步、到位过冲等问题，请根据装置的实际情况设定可靠的速度值。 Set the moving speed of wire threading. This value cannot be set too large, which may easily cause such issues as threading out of step and overshooting in place. Please set a reliable speed value according to the actual situation of the device. 此速度设置只对钢丝相关设置窗口中的穿丝、回丝、回零等自动运行时有效。 This speed setting is only valid for automatic running of wire threading, wire returning and zero returning in the wire-related setting windows.
穿丝 Thread	钢丝自动移动到钢丝结束行程位置。 Automatically move the wire to the wire end stroke position.
回丝 Wire returning	钢丝从当前位置自动移动到钢丝开始行程位置。 Automatically move the wire to the wire start stroke position from the current position.
回零 Returning to zero	钢丝从当前位置自动移动到零位传感器进行归零。 Automatically move the wire to the zero position sensor for resetting.
自动 Automatic	钢丝进入归零->钢丝开始行程->钢丝结束行程->钢丝开始行程->归零无限循

	<p>环测试直至再按自动按钮解除。</p> <p>The wire starts to reset -&gt; Wire start stroke -&gt; Wire end stroke -&gt; Wire start stroke -&gt; Returning to zero. Perform infinite cycle tests until pressing the auto button to release it.</p> <p>选择自动测试前请合理设置速度值。</p> <p>Please set the speed value reasonably before selecting automatic test.</p>
退出 Exit	<p>退出钢丝位置相关设置窗口。</p> <p>Exit the related setting windows of wire position.</p>

## 8. 系统维护

### Maintain(System maintenance)

程序版本查询、机器配置文件查询、设置系统时间、触摸屏校准。

It is used for program version query, machine configuration file query, system time setting, and touch screen calibration.





## 8.1 程序版本查询

### System Ver. View

入口路径：系统维护 -> 程序版本查询。

Entry path: System maintenance -> program version query.

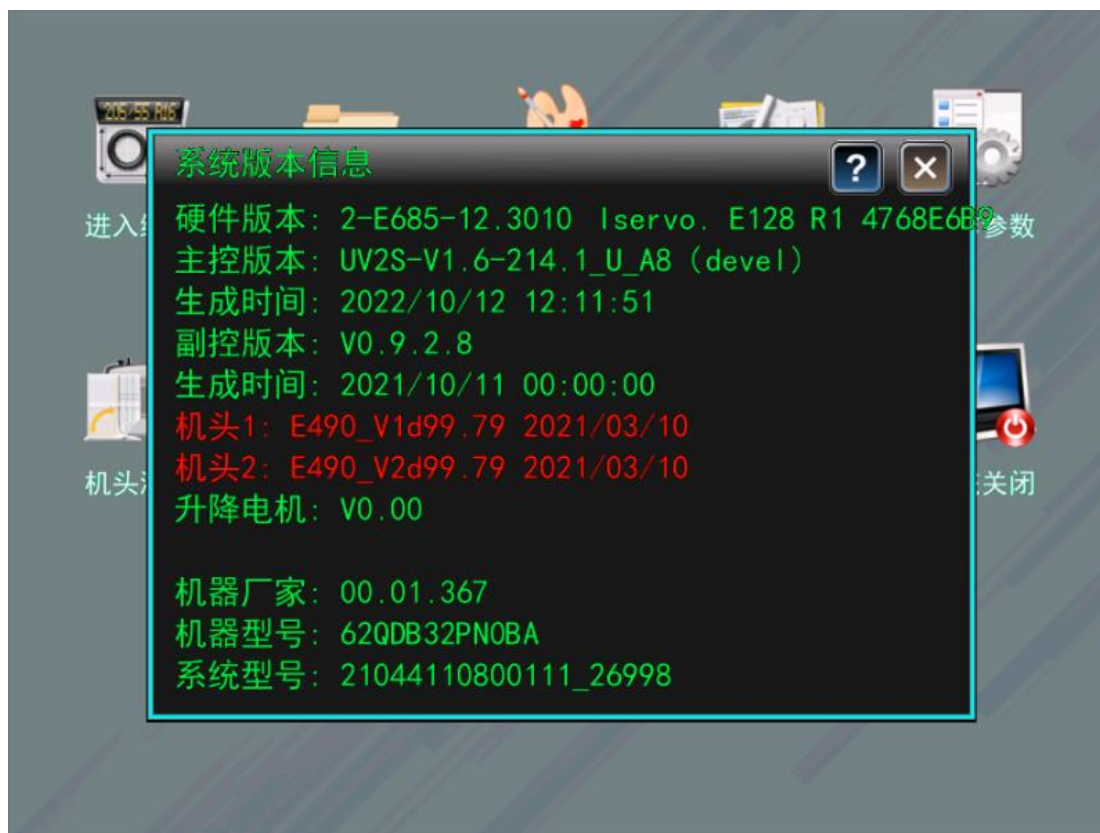
快捷路径：运行窗口 -> 帮助（放大镜） -> 系统版本查询

Shortcut path: Run Window -> Help (Magnifier)->.: System version query

查询控制系统当前使用的系统主要硬件信息、主控版本、机头小主板、副控版本、主伺服版本、机型配置文件等诸多信息。

Inquire the main hardware information currently used in the control system, including the master controller version, carrier's small main board, auxiliary controller version, main servo version, model configuration file and many other information.









触摸 + 按键屏快捷:

Touch + key screen shortcut:

运行界面，按小数点键。

Run the interface, and press the decimal point key.

备注:

Note:

硬件版本最后的 8 位数字符号组合是主板唯一 ID 号。

The last 8-bit digital symbol combination of hardware version is the unique ID number of main board.

机头 1、机头 2 等红色字体标识该主板、机头小主板有分期付款绑定关系。

Red fonts such as Carrier 1 and Carrier 2 identify the main board and the carrier's small main board, which have an installment payment binding relationship.

## 8.2 机器配置文件查询

### Machine config View

查询横机主要的一些参数数据（山板）、横机生产厂家 ID、系统该 ID 用户对应的生产代码等信息。  
Inquire the main parameters of the flat knitting machine data (knitting plate), flat knitting machine manufacturer ID, production code corresponding to the system ID user and other information.

配置项可以根据情况进行扩充、删减等，目前对部分参数提供了修改、保存，其余项主要方便查看特征用。

Configuration items can be added and deleted according to the situation. At present, modification and saving options are provided for some parameters, and the rest items are mainly used for viewing features.

部分配置项目下位机快捷修改:

Quick modification of lower computer of some configuration items:

1. 度目三角最小间距  
Minimum spacing of stitch cam
2. 度目三角最大间距  
Maximum spacing of stitch cam
3. 摇床位移量  
Displacement amount of rock

新增:

Add:

4. 选针排列  
Needle selection arrangement

5. 余数针排列  
Remainder needle arrangement
6. 摇床工作方向  
Working direction of rock
7. 摇床复位方向  
Reset direction of rock

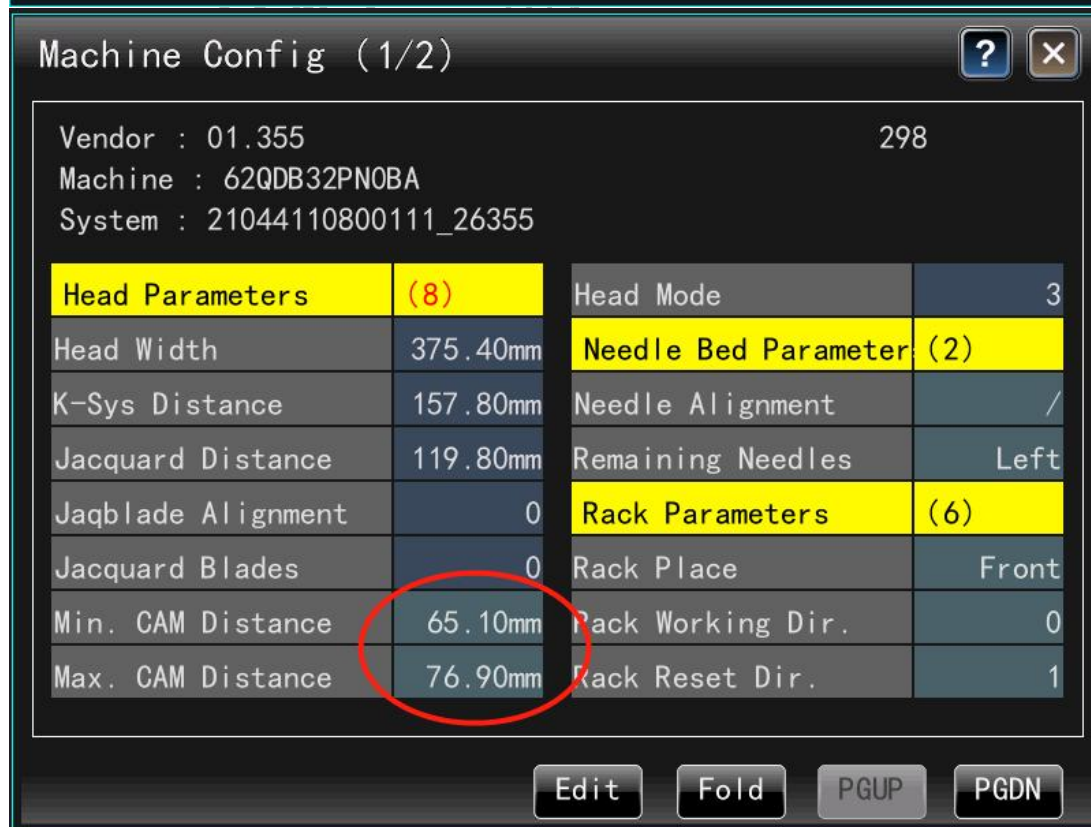
### 8.2.1 配置修改操作

#### Configuration modification

长按窗口下灰色编辑按钮 5 秒以上，弹出是否确认要修改机器配置项目？确认后再次弹出输入密码框，输入 8888 按确认后编辑按钮增亮、此时可修改配置项背景色出现变化提示，可对部分配置项进行修改。

Press the gray editing button under the window for more than 5 seconds, and a warning will pop up stating "Sure to modify the machine configuration items"? After confirmation, the input password box will pop up again. Enter 8888 and press the editing button to brighten it. At this point, a prompt for the color change of the background color of the modifiable configuration item appears, and some configuration items can be modified.

- 进入编辑界面后可修改配置项参数的背景色区别显示。  
After entering the editing interface, the background color of the modifiable configuration items can be modified for distinguishing.



- **度目三角最小间距修改**  
**Modification of minimum spacing of stitch cam**



● 摇床位移量修改

Modification of displacement amount of rock

单击摇床位移量参数区后弹出摇床位移量设置窗口，根据机器中摇床传动齿轮填入摇床主控齿轮、摇床从动齿轮数、摇床丝杆节距这3项机械参数后程序自动计算出摇床位移量，按设置后退出、系统重启后生效。

After clicking the displacement amount area of the rock, the setting window for the rock displacement will pop up. Fill in the 3 mechanical parameters, including the number of rock master controller gears, number of rock slave gear, and lead screw pitch based on the transmission gear of the rock in the machine. Then, the program will automatically calculate the displacement amount of the rock. Press the setting button to exit, which will work after the system restarts.







注意  
Note

机器配置查询在编辑修改保存后需重启生效。

The machine configuration query only works after the editing and modifying contents are saved and the machine is restarted.

谨慎修改配置项，防止因错误的参数修改造成经济损失。

Modify configuration items carefully to prevent economic losses caused by incorrect parameter modification.

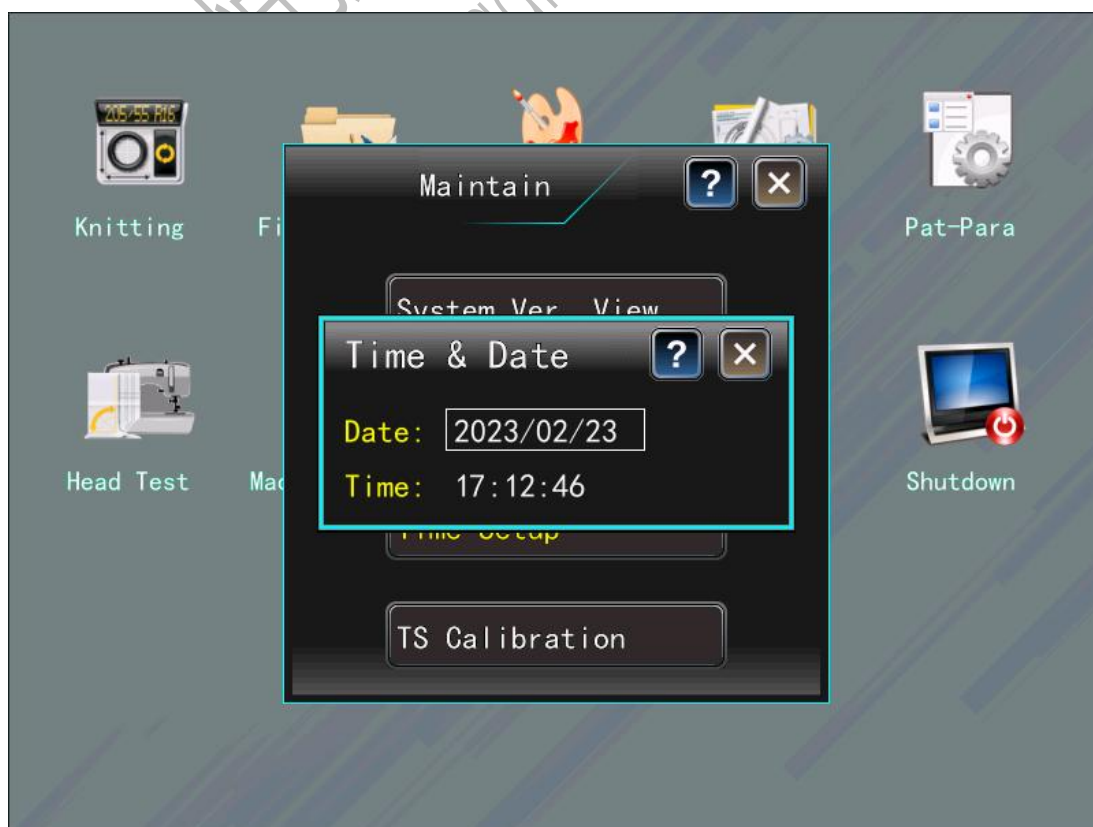
## 8.3 设置系统时间

### Time Setup

设置正确的系统日期、时间等。

Set the correct system date, time, etc.





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单击显示区弹出软键盘后按序输入，输入时下光标按序输入时移动至相关区域。

Click the display area to pop up the soft keyboard, and then enter the time in sequence. When entering, the cursor moves to the relevant area.

日期格式：年/月/日

Date format: Year/month/day

时间格式：时/分/秒

Time format: Hours/minutes/seconds

● **示例：**

**Example:**

日期：20220909

Date: 20220909

时间：111531

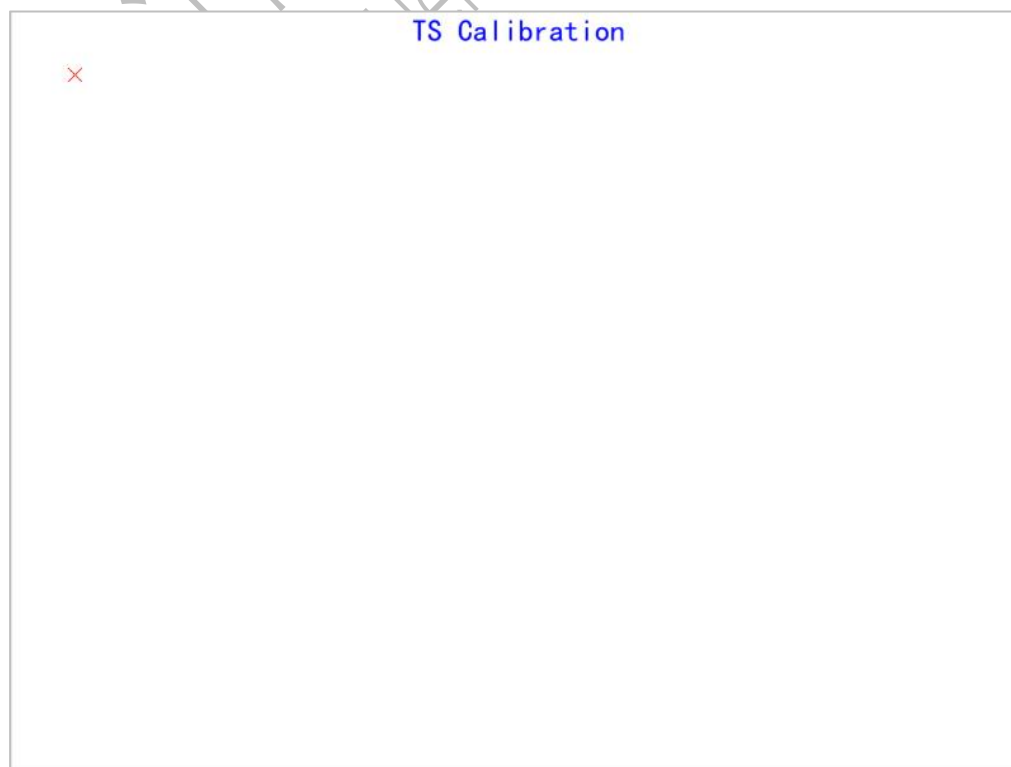
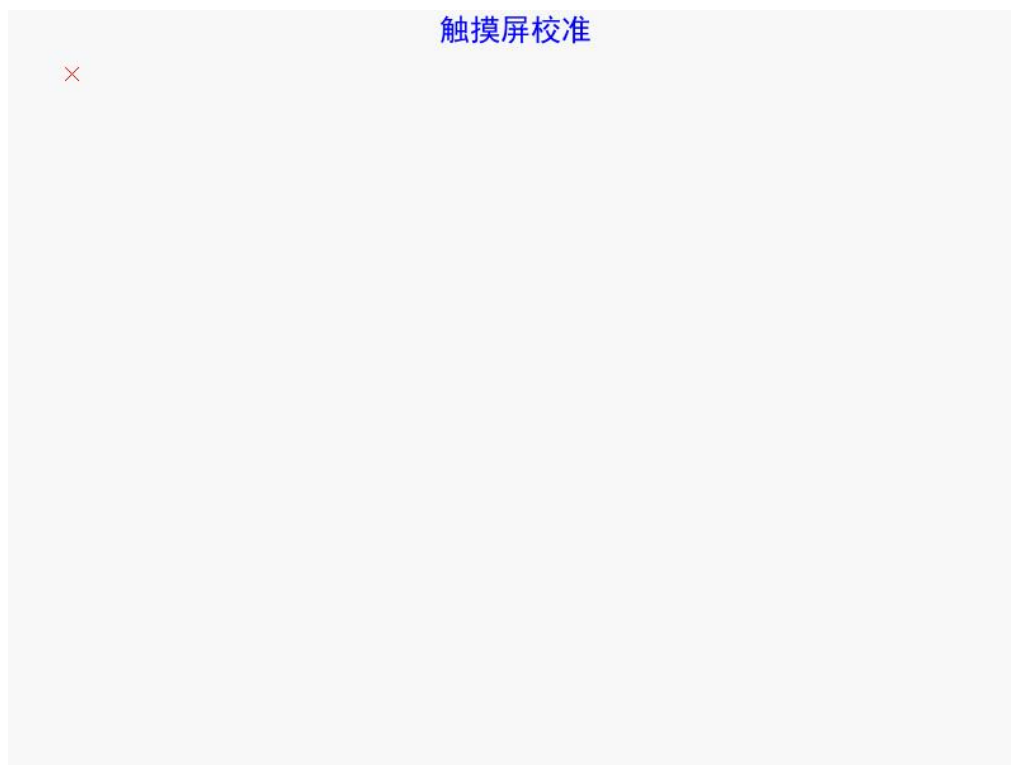
Time: 111531

在系统调试出厂前请务必校准日期、时间，特别是带有分期付款的机器必须要进行仔细校正。

Be sure to calibrate the date and time before the system debugging and factory leaving, especially the machines with installment payment.

## 8.4 触摸屏校准

### TS Calibration



当发现触摸位置与实际位置有不同时可进行校准操作，按屏幕中程序提供的 x 符号出现顺序进行触摸位置校准。

Calibrate the position when the touch position is found to be different from the actual position according to the order in which the x symbols provided by the program appear on the screen.

每单击一个 x 型后将在屏幕上显示正交坐标位置提示。

After each “x” is clicked, an orthogonal coordinate position prompt will be displayed on the screen.

效验失败、正确均有提示，触摸时请使用系统提供的触摸笔不要使用尖锐物如断针头织针、螺丝刀等防止损坏触摸屏。

There is a prompt no matter the check fails or is passed. During touch, please use the touch pen provided by the system. Do not use sharp objects (such as broken needles, screwdrivers, etc.) to prevent damage to the touch screen.

触摸效验成功后请至<花型管理-PAT 文件编辑>中将图形放大到合理比例，然后单击屏幕的上、下、左、右网格区域查看是否有点击格子漂移现象。

After successful touch check, please go to <Pattern management-PAT file editing> to enlarge the graphics to a reasonable scale, and then click the upper, lower, left and right grid areas of the screen to see if the grid drifts or not.

## 9. 系统日志

### System log

系统日志记录系统一系列重要的报警、操作、程序调试等信息。

System log records a series of important information, such as alarms, operation, program debugging and the likes.

系统运行日志

1	2022/08/10-14:27:24	花型启用<02>
2	2022/08/10-14:27:24	花型结束<0008-1>
3	2022/08/10-13:04:22	{系统参数设置函数}
4	2022/08/10-12:22:20	[起底板安全门]
5	2022/08/10-12:22:20	event 65 [0 0]
6	2022/01/05-16:58:31	[主电机没准备信号]
7	2021/03/10-09:19:32	[主电机没准备信号]
8	2021/03/10-09:19:32	event 65 [0 0]
9	2021/03/10-09:18:03	[主电机没准备信号]
10	2021/03/10-09:18:03	event 65 [0 0]
11	2020/12/03-08:44:57	花型启用<196mq>

清除 导出 调试输出 退出 上页 下页

System Log

1	2023/02/22-18:11:03	[抓屏操作已完成]
2	2023/02/22-18:10:11	{Syspara Setup Routine}
3	2023/02/22-18:08:44	[抓屏操作已完成]
4	2023/02/22-18:07:55	[抓屏操作已完成]
5	2023/02/22-18:07:34	{Syspara Setup Routine}
6	2023/02/22-18:05:32	[抓屏操作已完成]
7	2023/02/22-18:03:46	[抓屏操作已完成]
8	2023/02/22-18:02:21	[抓屏操作已完成]
9	2023/02/22-17:59:26	[抓屏操作已完成]
10	2023/02/22-17:58:09	[抓屏操作已完成]
11	2023/02/22-17:57:14	[抓屏操作已完成]

Clear Export Debug EXIT PGUP PGDN

存储: 500 (条)

Storage: 500 (pieces)

例如:

Example:

花型切换、系统参数修改操作、系统报警 (主控、机头、伺服、起底板等)。

Pattern switching, system parameter modification, system alarm (master controller, carrier, servo, pull board, etc.).

一些重要的报警有显示当前编织行信息, 便于程序根据报警行查找与之相关问题。

Some important alarms show the information of the current knitting row, which facilitates the program to search for the related problems according to the alarm row.

## 9.1 功能按钮

### Function buttons

#### 9.1.1 清除

##### Clear

- 清空当前日志全部信息, 一旦清空将不可恢复。

Clear all the information in the current log. Once emptied, the information will not be recovered.

- 清空一般只在机器安装调试完成、入库之前。

In general, this operation is only conducted after the machine is installed and debugged and before it is put into warehouse.

- 程序调试版本测试前建议将日志导出备份, 以便调试测试后再还原恢复之前程序版本时重新导入系统参数等。

It is recommended to export logs for backup before testing the debugging version of the program, so that the system parameters can be re-imported when restoring the previous program version after debugging and testing.

- 因受存储空间限制, 日志信息采用按时间滚动方式更新, 最大存储 500 条信息, 正常情况下一般可以记录一周的相关信息。

Due to the limitation of storage space, the log information is updated by time rolling. Up to 500 pieces of information can be stored, equivalent to the information generated in one week under normal circumstances.

#### 9.1.2 导出

##### Export

插入 U 盘, 单击按钮, 导出时程序自动检查 U 盘是否正常。

Insert the USB disk and click the button. Then, the program will automatically check whether the USB disk is normal when exporting.



导出文件:

Export file:

- 日志(LOG)  
Logs
- 系统参数(CFG)  
System parameters (CFG)
- 机器配置信息(MCH)  
Machine configuration information (MCH)

日志输出文件名自动以系统主板唯一 ID 号、长度 8 位西文字符命名，便于当需要将多台机器的日志导出无需手动命名。

The log output file is automatically named with the unique ID number of the system's main board and 8-bit Western characters, which facilitates exporting logs of multiple machines without manual naming.

日志导出在 U 盘根目录下。

The log is exported in the root directory of USB disk.

其中的后缀 MCH 文件是纯文本格式，可使用文本编辑工具查看，例如 Windows 系统默认提供的记事本 (notepad.exe) 等工具。

The suffix MCH file is in plain text format, which can be viewed using text editing tools, such as Notepad (notepad.exe) provided by default by Windows system.

MCH 信息文件中显示机器配置中厂家、机器型号信息以及主控、副控、机头等程序版本信息并可根据需要更新显示项目。

The MCH information file displays the manufacturer, machine model information and program version information such as master controller, auxiliary controller and carrier in the machine configuration, and the display items can be updated as needed.

机器厂家: 恒强科技

Machine manufacturer: Hengqiang Technology

机器型号: 55QDB32SMS6JBA

Machine No.: 55QDB32SMS6JBA

系统型号: 21144101800111\_26000

System model: 21144101800111\_26000

起底板 : 有

Pull board: Yes

剪刀夹子: 有

Scissors and clamp: Yes

摇床位置: 后床

Rock position: Rear bed

编纂: 浙江恒强科技股份有限公司-研发中心

Compiled by: Zhejiang Hengqiang Technology Co., Ltd. - R&D Center

沈国龙, 匡越、王宇鹏

Shen Guolong, Kuang Yue, Wang Yupeng

选针排列: 撇 1000 72

Needle selection arrangement: Left falling 1000 72

硬件版本: 2-E680-30.3010

Hardware version: 2-E680-30.3010

主控版本: UV2S-V1.6-212.336 (devel)

Master controller version: UV2S-V1.6-212. 336 (devel)

生成时间: 2022/09/05 08:22:40

Generation time: 2022/09/05 08:22:40

副控版本: V0.1

Auxiliary controller version: V0.1

生成时间: 2022/07/16 07:00:21

Generation time: 2022/07/16 07:00:21

机头版本: E480\_V1b99 2022/07/16

Carrier version: E480\_V1b99 2022/07/16

### 9.1.3 调试输出

#### Debug output

将当前花型、系统日志、系统参数、系统配置等打包至 1 个文件后输出至 U 盘中，命名按主板唯一 ID。

Pack the current pattern, system log, system parameters, system configuration into one file, and output it to the U disk, which is named based on the unique ID of the main board.

增加此按钮主要是便于技术支持、终端用户发现当前花型某些行运行中出现问题时可以直接打包输出后发恒强科技控制软件编制相关工程师进行模拟、分析问题等。

This button is added mainly to facilitate technical support. When end users find any problems in the operation of some rows for current patterns, they can directly pack and output them, and then send them to Hengqiang Technology control software compilation engineers for simulation and analysis.

### 9.1.4 退出

#### Exit

退出系统日志窗口，也可触摸单击右上角的 X 按钮退出。

Exit the system log window, or click the X button in the upper right corner to exit.

### 9.1.5 上页/下页

#### Previous/next page

日志翻页操作。

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Log page turning operation.

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**附件：**

**Annex:**

1. [恒强横机控制系统维护指南-A0](#)
1. [Maintenance Guide for Control System of Hengqiang Flat Knitting Machine-A0](#)

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