OPERATION MANUAL PART 3

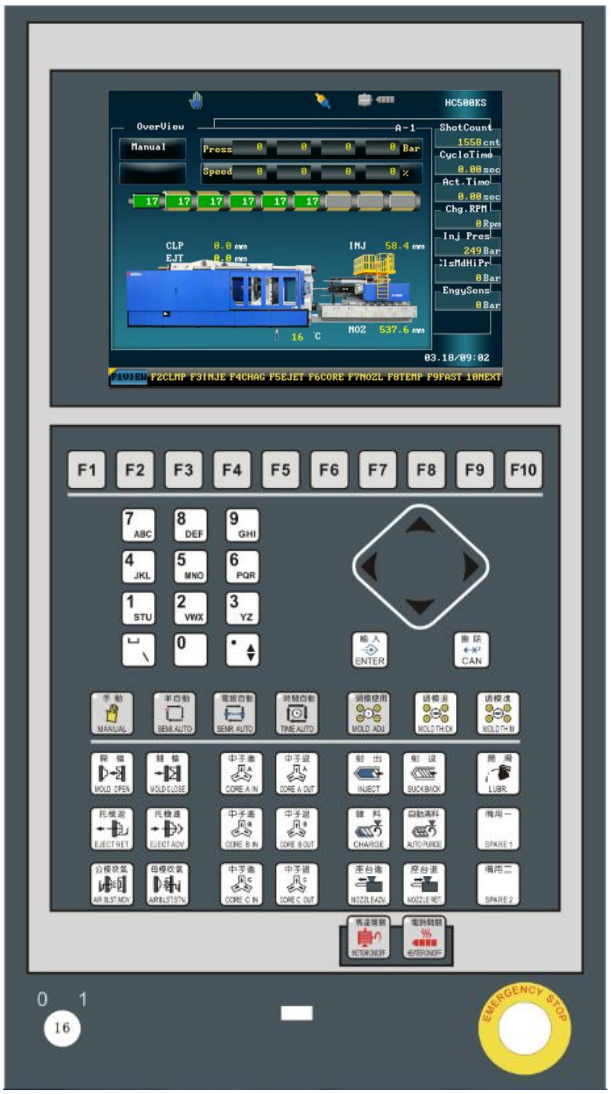
PLASTIC PROCESSING MACHINE

Q8/M10M Standard

Edition：7TR_B11_1517_update

Please read this manual carefully before the installation, operation and maintenance.

Original instruction



Preface

This Controller Manual for the Q8,M10M and M12M (Standard Version) .
Please refer to the Operations Manual for exact instructions on how to set up and program the machine's clamping unit, injection unit, production monitor and the printing and networking functions.

Please note that the information in this manual is subject to change without notice.
We hope you will find this manual helpful for your machine operations. In order to help us improve our products and documentation we encourage you to provide us with any feedback and suggestions for improvement you might have.

 **Note:** For avoid damage the operator or machine , produce the good quality products please read careful the manual before running the machine.

 **Responsibility**: The purchaser has the responsibility to ensure safety of operator and machine. The people who is not be basic train and no knowledge of injection molding machine is not allow to operate the machine.

 **Note:**Not change the content of manual without approve.

 **Note:**This manual is a general purpose, some page and function maybe not for your machine.

 **Note:** This manual is only to the purchaser who will use the controller.

Table of Contents

1 Operations Manual

The instructions within the Operations Manual assume that you are familiar with the HMI panel keys and the various HMI display screens. If you are not or you are looking for more information on any of the keys or display screens please refer to the appropriate section within the Reference Manual.

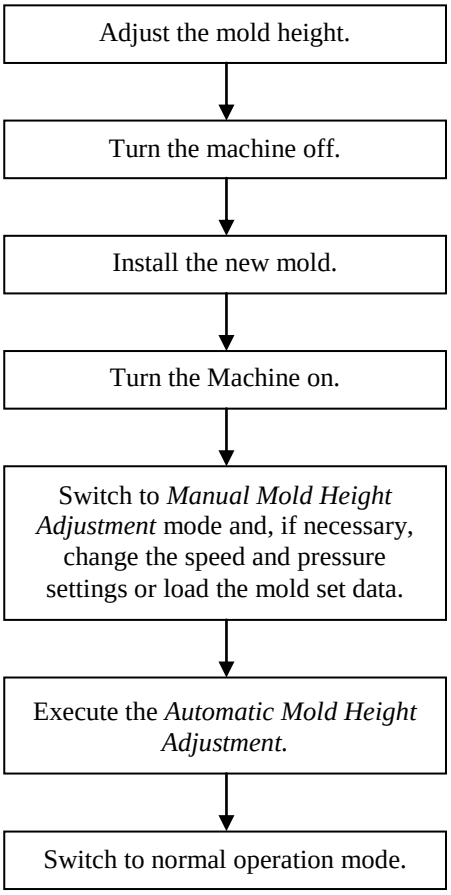
1.1 Clamping Unit Setup

When changing the mold follow the machine manufacturer's instructions at all times to avoid the possibility of serious injuries to the machine operators.
After changing the mold you have to ensure that the mold and the nozzle/injection unit are properly aligned to avoid damage to the machine. In addition, you need to make sure all necessary hose connections to the mold have been properly established and the mold has been mounted securely.

1.1.1 Mould Height Adjustment

Before installing the mold use the *Mold Adjustment* keys to adjust for mold thickness and to advance or retract core(s) if necessary.

Press the *Reduced Mold Height Adjustment Key* to roughly adjust for a reduced mold height (reduced distance between moving and static platen) or the *Increased Mold Height Adjustment Key* to roughly adjust for an increased mold height (increased distance between moving and static platen).



For continues platen movement press and hold the key. The platen will move slightly and stop. Keep the key pressed and after a one-second delay the platen will start to move continuously. Release the key to stop platen movement. If you press the key and release it immediately, the platen will move slightly and stop, allowing for micro adjustments. You can repeat this operation until the moving platen has reached the desired position.

Caution: Regarding to the safety issue, please stop the motor from operating and turn OFF the machine while installing the new mold.

Once you have finished the installation of the new mold, close the safety gate, turn on the machine and press the *Manual Mold Height Adjustment On/Off Key* once to activate the *Manual Mold Height Adjustment* mode. Switch the HMI display to the *Other Settings* screen by pressing *F9 (Fast)→ F2 (Adjm)*. This screen allows you to change the speed and pressure settings after the mold has been changed. If necessary, adjust the pressure, speed and position settings for the new mold or load the mold set data.

After adjusting the settings press the *Manual Mold Height Adjustment On/Off* key again to close the mold. While closing the mold the controller will execute an automatic mold height adjustment until the new settings are reached. Once the automatic adjustment has finished all machine operations will stop and the alarm will sound. This indicates that you can now switch back to manual or automatic operation modes.

Warning: For the safety reasons, you have to switch the machine into Manual Operation mode by pressing Manual key before you use the Mold Height Adjustment key or Manual key. If you wish to use any other mode, please change to the Manual mode before switching to the mode you required.

If you encounter any problems during the mold height adjustment press the *Manual* key for an emergency reset to stop the operation.

1.1.2 Mold Closing and Mold Protection

Mold closing is executed in three phases: *Close mold 1 stage*, *Close mold 2 stage*, *Close mold 3 stage*, *Low Pressure* closing and *High Pressure* closing. For optimum productivity mold closing should be executed as fast as possible. However, to avoid damage to the mold and/or machine it is important to use correct settings to ensure appropriate mold protection. For this reason pay particular attention to the *Slow Speed* phase.

Press the *Manual* key to activate the *Manual* mode. Switch the HMI display to the *Clamp Settings* screen by pressing *F2 (Clamp)*.

Set the *Mold Opening Stroke*. *The Mold Opening Stroke* is measured from the closed mold. Therefore the *Mold Opening Stroke* position is "0" when the mold is in its closed position.

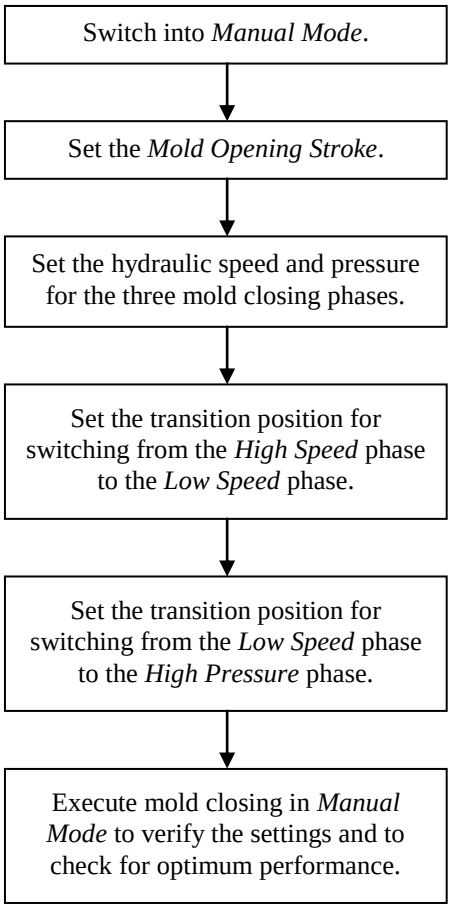
Next enter the desired hydraulic speed and pressure settings for the three mold closing phases. You have to ensure that the settings allow for a smooth, jerk-free movement of the mold.

Set the hydraulic speed for the *Low Speed* phase low enough to avoid damage to the mold in case a jammed part has remained in the mold. For the same reason set the lowest hydraulic pressure possible.

To avoid damage to the mold the transition point for switching between *High Speed* and *Low Speed* phase should be set before the position where the mold could come into possible contact with a jammed part.

The transition point for switching from the *Low Speed* to the *High Pressure* phase should be set at the position where both parts of the mold are starting to touch to initiate the high pressure mold lock-up.

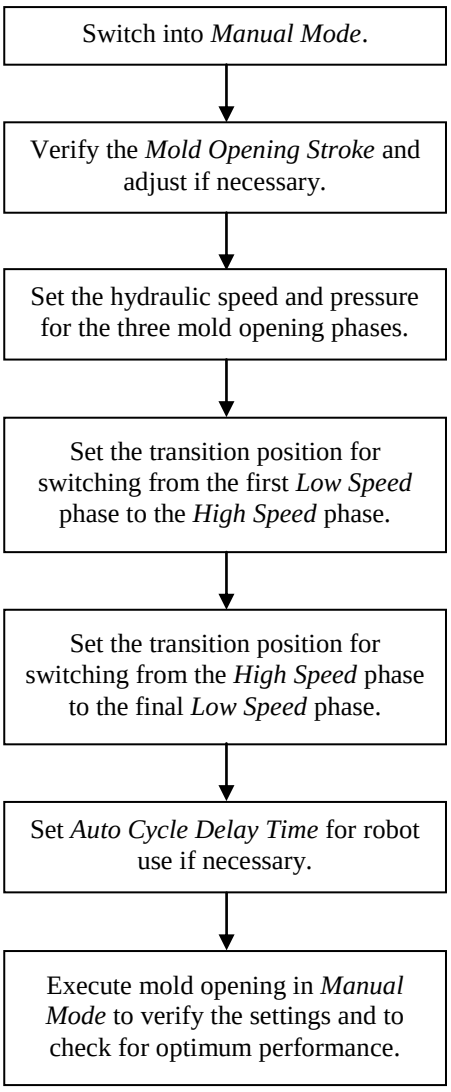
To accelerate mold closing you can activate the differential high-speed mold closing option for the *High Speed* closing phase.



After setting all mold closing parameters execute mold closing in *Manual Mode* to check for optimum machine performance. If you encounter any problems during the mold closing adjustment press the *Manual* key for an emergency reset to stop the operation.

1.1.3 Mold Opening

Mold opening is divided into five phases: *Open mold 1 stage, Open mold 2 stage, Open mold 3 stage, Open mold 4 stage and Open mold 5 stage* .



Press the *Manual* key to activate the *Manual* mode. Switch the HMI display to the *Clamp Settings* screen by pressing *F2 (Clamp)*.

Then, enter the desired hydraulic speed and pressure setting for the 5 mold opening stages. You have to ensure that those settings allow for a smooth, jerk-free movement of the mold.

Set the hydraulic speed for the Mold Open Stage 1 in order to separate the mold platen smoothly.

Adjust the transition point for switching from Mold Opening Stage 1 to Mold Opening Stage 2 according to your requirement.

The transition point setting of switching from Mold Open Stage 4 to Mold Open Stage 5 would allow the mold to slow down sufficiently before reaching the end of position of the Mold Opening Stroke.

In case you want to use a robot to retrieve the mold product at the end of the mold opening/production cycle you need to set the *Auto Cycle Delay Time*. Enter the time to elapse between the end of mold opening and the beginning of mold closing (indicating the start of the next production cycle).

After setting all mold opening parameters execute mold opening in *Manual Mode* to check for optimum machine performance. If you encounter any problems during the mold opening adjustment press the *Manual* key for an emergency reset to stop the operation.

1.1.4 Ejector

The ejector can be operated in three different modes to knock the finished product out of the mold at the end of mold opening. You can choose between the *Hold*, *Count Number* and the *Vibration* modes.

The *Hold* mode is used during semi-automatic operation. The ejector moves forward according to the ejector settings and the product is dropped or taken out. After the safety gate has been opened and closed the next cycle will start.

In *Count Number* mode the ejector is activated according to the *Ejector* and *Ejection Count* settings. This mode is usually used for automatic machine operation. It does not require the opening and closing of the safety door to continue the production cycle.

If you use **the *Vibration* mode** the ejector movement is controlled by the *Ejector* and *Ejection Count* settings with the ejector vibrating at the end of the forward movement according to the *Vibration* setting set in the *Parameter 2* screen (setting No. 6) before retracting again.

Press the *Manual* key to activate the *Manual* mode. Switch the HMI display to the *Ejection Settings* screen by pressing *F5 (Eject)*.

First, set the *Ejection Mode* and *Count.* Please note, if you want to deactivate the ejector you can do so by setting the *Ejection Count* to "0".

The *Eject Try Again* function is used for the *Photo Sensor* auto operation mode. If the mold product cannot be knocked out completely, the alarm will sound and the ejector will be activated again. If the mold product is then successfully knocked out the machine will resume normal operation; otherwise it will stop for trouble shooting.

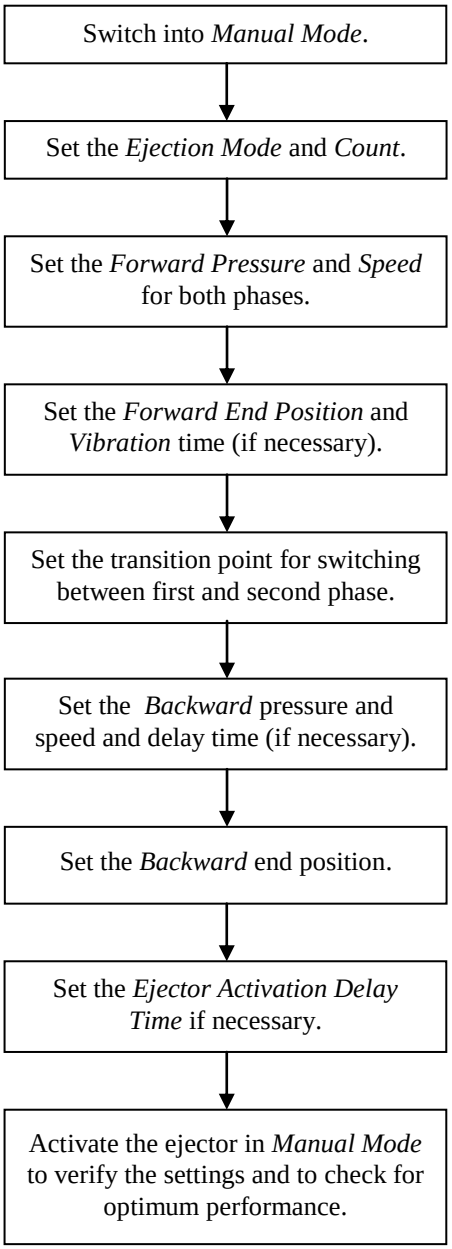
If the mold product has not been knocked out successfully while in *Photo Sensor* auto operation mode and the *Eject Try Again* function is not activated, the alarm will sound and the machine will stop for ejection trouble shooting.

The initial ejection is divided into two phases that can be controlled separately. Set the pressure, speed and transition position individually for each phase.

Then, please set the pressure and speed for the ejection retract.The Backward Delay time allows you to set the time the ejector will stay in the forward end position before it is retracted. (But will not maintain ejector forward, pressure, speed and electromagnetic valve).

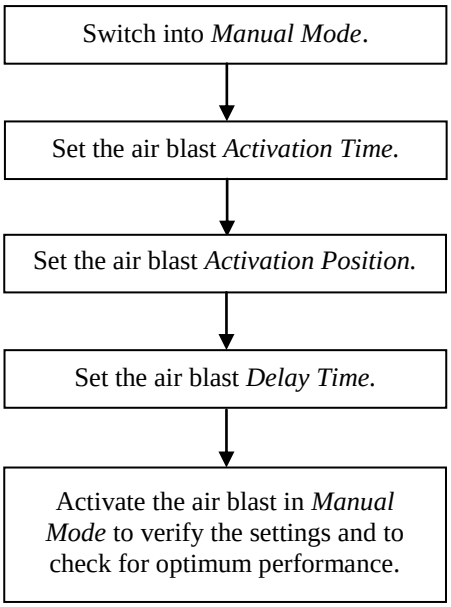
If you require additional cooling of the mold product after mold opening, set the *Ejector Activation Delay Time* accordingly.

After setting all ejection parameters activate the ejector in *Manual Mode* to check for optimum machine performance. If you encounter any problems during the ejection set-up press the*Manual* key for an emergency reset to stop the operation.



1.1.5 Air Blast

The machine provides an air blast ejection option for the moving platen as well as for the stationary platen, and C platen, D platen, E platen, F platen.



Press the *Manual* key to activate the *Manual* mode. Switch the HMI display to the *Ejection Settings* screen by pressing *F5 (Eject)→F3(Blst)*.

First, set the *Activation Time* (duration of air blast) for each platen.

Set then the corresponding *Activation Position* at which you want to activate the air blast. The *Activation Position* refers to the mold position (reached during mold opening) at which the air blast is activated.

If necessary, set the *Delay Time* for activating the air blast (after the *Activation Position* has been reached) according to your preferences.

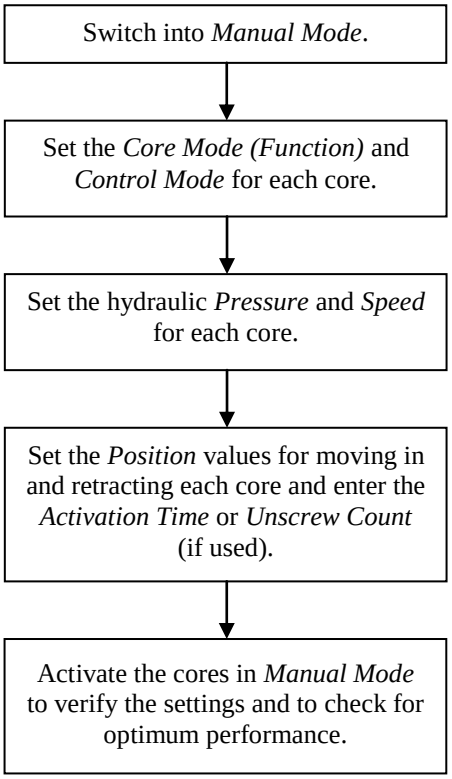
In case you require additional cooling of the mold product after mold opening, set the *Delay Time* for the air blast activation accordingly.

After setting all air blast parameters activate the air blast in *Manual Mode* to check for optimum machine performance. If you encounter any problems during the air blast set-up press the *Manual* key for an emergency reset to stop the operation.

1.1.6 Core(s)

Depending on your setup your machine may be equipped with up to 6 cores (A, B, C, D, E, F). Each core is controlled separately. When setting up the core(s), you need pay close attention to make sure the settings will not cause damage to the core(s) and/or the mold. Since the cores are freely programmable it is impossible for the controller to prevent all possible settings errors.

Press the *Manual* key to activate the *Manual Mode*. Switch the HMI display to the *Core Settings* screen by pressing *F6 (Cores)*.



First, choose for each core either the *Core Mode* if you want to use a regular core that is moved in and retracted hydraulically or the *Unscrew Mode* if your mold requires threads created by unscrewing the inserted core. If the core is not needed set the *Function* value to "0".

Next, select the desired *Control Mode* to control the core movement. In *Core Mode* you can use either *Cycle Control* or *Time Control*. In *Unscrew Mode* you can use *Time Control* or *Count Control*.

Using *Cycle Control* allows you to control the core movements by limit switches for end-position control (for insertion and retraction). At the pre-set point during the production cycle the core(s) will move in/out until the limit switch controlled end-position is reached. Please make sure the limit switches are activated since deactivated switches will cause the machine to stop (if *Cycle Control* is selected).

Time Control uses time settings for core insertion and retraction. At the pre-set position during the production cycle the core(s) are moved in/out for the set period of time. Therefore core movement (travel) is not controlled by end-position but by time. As a result you will not be able to rely on the protection of limit switches.

Accordingly, in *Unscrew Mode* the *Time Control* is used to set the time core unscrewing is activated (e.g. for creating threads).

Count Control uses the pre-set number of revolutions to control the unscrewing of the core at the set position during mold opening. To use *Count Control* you have to make sure a photo sensor for counting the revolutions is installed on the core driving gear.
Please note that *Count Control* allows for higher precision than *Time Control*.

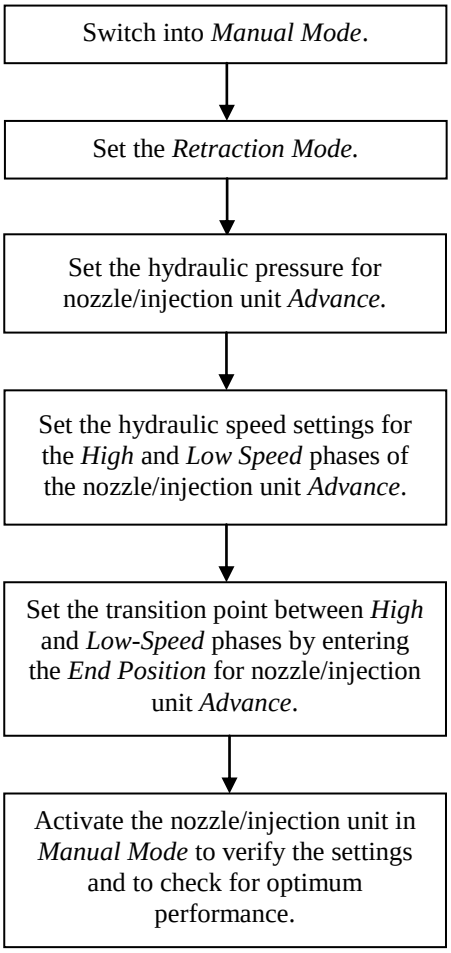
Set the *Pressure*, *Speed*, *Activation Time*, *Unscrew Count* (if used) and *Position* values for moving in and retracting each core according to your needs.
Unique to *Core A* is the possibility to activate *Core Unscrewing* a second time (*2nd Uns*.) at the end of the mold opening cycle. Please note that the second unscrewing can only use *Count Control*.

After setting all core parameters activate the core(s) in *Manual Mode* to check for optimum machine performance. If you encounter any problems during the core set-up press the *Manual* key for an emergency reset to stop the operation.

1.2 Injection Unit Setup

1.2.1 Nozzle/Injection Unit

Depends on your requirements you can set up the nozzle/injection unit to retract after injection has finished. The controller offers you 3 different modes to choose from if nozzle/injection unit retraction is needed.



Press the *Manual* key to activate the *Manual* mode. Switch the HMI display to the *Other Settings* screen by pressing *F7 (Nozzle)*.

First, set the *Retraction Mode* (*Sprue Back*). The *After Charge* mode (*A. Chg.*) retracts the nozzle/injection unit after charging (plasticizing) is finished. The *Before Opening* mode (*B. Opn.*) initiates nozzle/ injection unit retraction before mold opening starts. If you want to retract the nozzle/injection unit after injection has finished choose the *After Injection* mode (*A. Inj.*). Setting the value to "0" will cause the nozzle and injection unit to stay in place (no retraction).

Next, set the hydraulic pressure for nozzle/injection unit *Advance*. Enter the hydraulic speed settings for the corresponding *High* and *Low Speed* phases of the nozzle/injection unit *Advance*. During the forward movement the *High-Speed* settings are used until the set *End Position* is reached. Thereafter the nozzle/injection unit will move forward using the *Low-Speed* settings, until it has reached the final injection position.

When the Nozzle/Injection Unit moves forward near to the end position, the speed will be changed into low speed. It is important to allow for a safety margin of at least 20mm between the set End Position and the actual contact point of nozzle and mold. If the *End Position* is set too close to the contact point of nozzle and mold the nozzle might not slow down enough before touching the mold. The result could be damage to mold and/or nozzle.

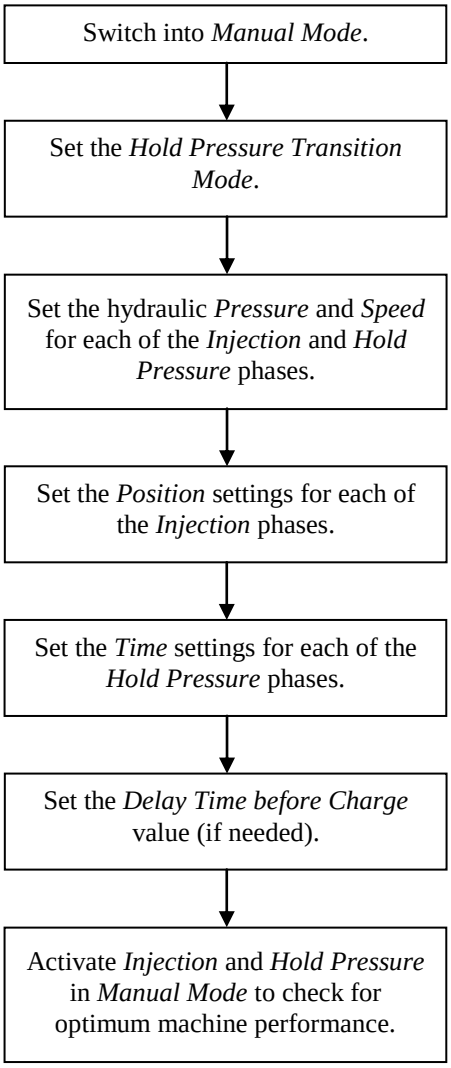
Please note that a position setting of "0" refers to the position reached at the end of maximum nozzle/injection unit retraction. As a result the *Advance End Position* is always greater than "0".

After setting all nozzle/injection unit parameters activate the nozzle/injection unit in *Manual Mode* to check for optimum machine performance. If you encounter any problems during the nozzle/injection unit set-up press the *Manual* key for an emergency reset to stop the operation.

1.2.2 Injection and Hold Pressure

Depending on your machine set-up the *Injection* process is divided into 3-6 phases and *Hold Pressure* into 1-5 phases. The corresponding pressure - position graph of the current injection settings and the real-time values achieved during the current *Injection/Hold Pressure* cycle are display in the *Injection Settings Profile*. Press *F3 (Inject)* to access the *Injection Settings Profile* screen for a review of your settings.

Activate the *Manual Mode* by pressing the *Manual* key. Switch the HMI display to the *Injection Settings* screen by pressing *F3 (Inject)*.



First, choose the *Hold Pressure Transition Mode*. If the *Time* mode is used the controller will switch to *Hold Pressure* after the set injection time has elapsed. In case the *Position* mode has been selected the controller will switch to *Hold Pressure* after the last set injection position has been reached. However, the set time is used as a backup to initiate the *Hold Pressure* phase if for some reason the set transition position cannot be reached.

Please note that you should always set the time limit higher than the usually required injection time. This avoids poor molding results due to possible resign fluidity variations (poor fluidity could require a longer than usual injection time). The transition between each *Hold Pressure* phase is controlled by the corresponding time settings and is not affected by the *Hold Pressure Transition Mode* settings.

It is possible to use a combination of pressure and time settings to control the injection process by setting the position value for the transition from *Injection* to *Pressure Hold* to zero. In this case the final position will never be reached and the pre-set injection time will be used as a backup. However, doing so will disable the monitoring of the current injection data and as a result you will not be able to use the injection cushion for monitoring the injection process. Please refer to the *Monitor Settings 1* section of the reference manual for more information on monitoring options.

Next, set the hydraulic pressure and speed for each of the *Injection* and *Hold Pressure* phases.

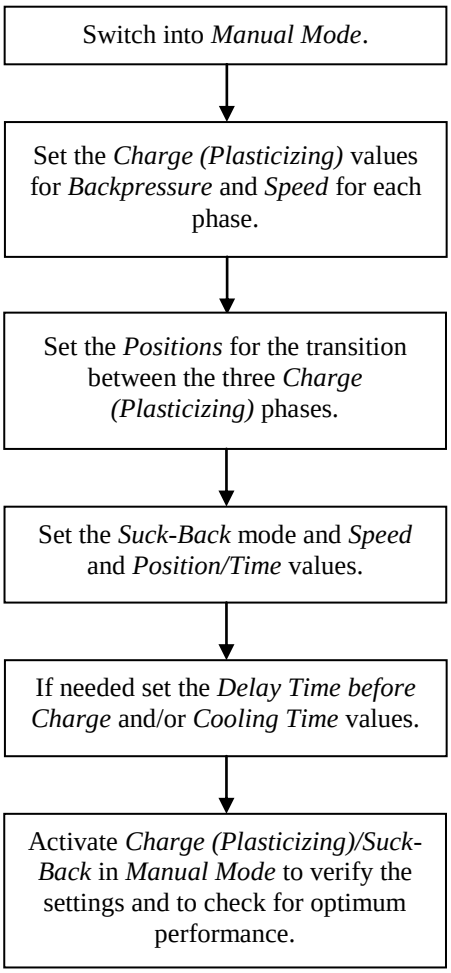
Enter the *Position* settings for each of the *Injection* phases and the *Time* settings for each of the *Hold Pressure* phases.

If cooling is needed at the end of *Injection*/*Hold Pressure* and before *Charge (Plasticizing)/Suck-Back* is initiated set the desired *Delay Time before Charge* value accordingly.

After setting all *Injection*/*Hold Pressure* parameters activate *Injection* and *Hold Pressure* in *Manual Mode* to check for optimum machine performance. If you encounter any problems during the *Injection*/*Hold Pressure* set-up press the *Manual* key for an emergency reset to stop the operation.

1.2.3 Charge (Plasticizing) and Suck-Back

Charge (Plasticizing) is divided into five phases and suck back. You can set the *Backpressure* and *Speed* for each phase individually. *Suck-back* is initiated at the end of *Charge (Plasticizing)* if required.



Press the *Manual* key to activate the *Manual* mode. Switch the HMI display to the *Injection Settings* screen by pressing *F4 (Charge)*.

First, set the *Charge (Plasticizing)* values for *Backpressure* and *Speed* individually for each phase.

Next, enter the *Positions* for the transition between the five *Charge (Plasticizing)* phases.

If there is a control back pressure with the setting value of pressure function, you can set the back pressure in order to raise the density of the plastic in the barrel.

You can choose *Suck-Back* mode at the F2 charge page. Suck back mode has the option of suck back after injection and suck back after cooling.

You can choose *Suck-Back* control mode at the F4 function page. Suck back control mode has the time controlling and position controlling.

In addition, enter the *Suck-back Speed* and *Position/Time* values. The same input field (below the *Suck-Back Pressure* and *Speed* settings) is used for both, the *Time* and the *Position* settings. The field label will change according to the selected mode to indicate the required value.

Set the *Suck-back Press/Speed* value to “0” if no *Suck-back* is needed.

If cooling is needed after the injection hold pressure, please set the cooling before charging time.

Cooling timing : In case mold cooling is needed after completion of Charge/Suck-Back, please set the cooling time as required.

In case cooling is needed after the completion of *Charge (Plasticizing)/Suck-Back* and before the mold is opened enter the desired *Cooling Time*.

After setting all *Charge (Plasticizing)/Suck-Back* parameters activate *Charge (Plasticizing)* and *Suck-Back* in *Manual Mode* to check for optimum machine performance. If you encounter any problems during the *Charge (Plasticizing)/Suck-Back* set-up press the *Manual* key for an emergency reset to stop the operation.

1.2.4 Heater

Depending on your machine set-up the barrel heater of the injection unit is equipped with up to 9 barrel heating zones. The temperature, cushion and timer is controlled separately for each of the barrel's heater bands. The right hand graph shows the current (actual) and set temperature for each barrel heating zone.

Activate the *Manual Mode* by pressing the *Manual* key. Switch the HMI display to the *Temperature Settings* screen by pressing *F8 (Temp)*.

First, set the Temperature Mode(Half Warm): Choose "Not neccessary" if you want to keep the temperature always in the preset range regardless of the machine operation. Choose "Use" if you want to keep the barrel temperature at the half warm temperature.

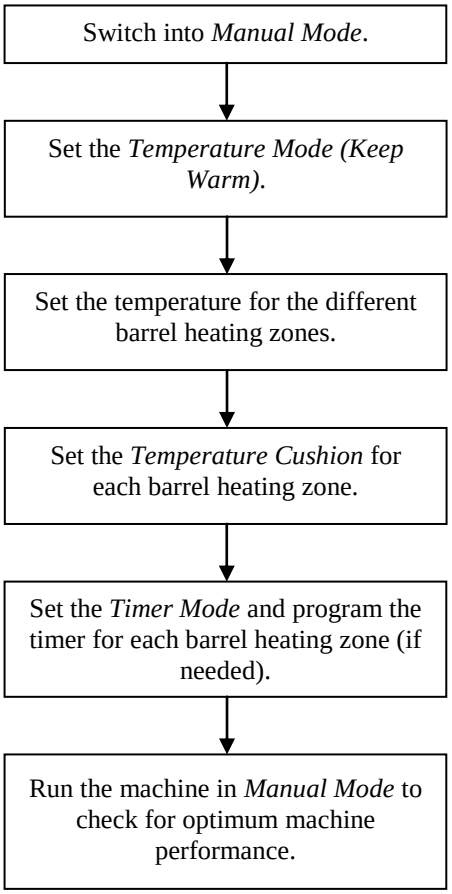
Then, set the temperature for the different barrel heating zones. On the screen it will show each heating zone status with different colors:

Dark Green : The real temperature is in the range of the temperature cushion.(injection movement is available)

Green : Heating is activating(Injection is not available)

Red : The real temperature is out of the range of the temperature cushion and over the up limit.

Please note that the heater will be turned off immediately once the current temperature exceeds the set value. For current temperatures below the set value heater activation depends on the set *Temperature Cushion.*



To adjust the *Temperature Cushion*, please press *F8 (Temp) and press F4 (Para)* to go to the *Parameter* screen. If you want to activate the fist zone, just enter "1" for the first zone.

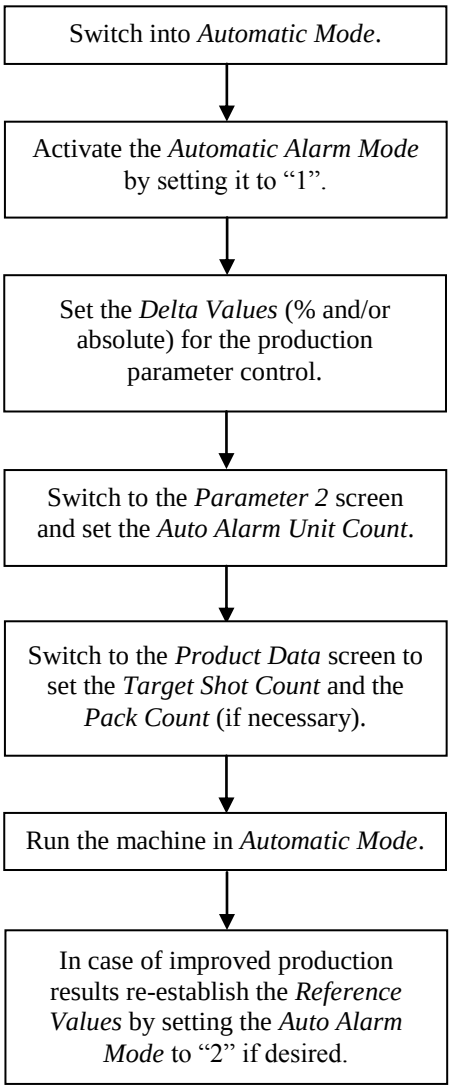
If you want to use Timer to control the barrel heating. Please press F3 (Func), select Temperature Timer mode. Choose the date according to the day and setup the starting time. The computer will then adjust the temperature according to the time you set. Select the setting 0 if you are not using.

In case of temperature related malfunctions a "977", '988" or "999" will be displayed in the *Real Value* field. A "977" refers to either a disconnected or malfunctioning D/A Temperature Card. The value "988" identifies either a problem with the Thermal Wire Interface or the corresponding Temperature Sensor. In case the current temperature is exceeding the normal temperature range (the current temperature is above 450º C) the value "999" will be displayed.

After setting all *Heater* parameters run the machine in *Manual Mode* to check for optimum machine performance. If you encounter any problems during the *Heater* set-up press the *Manual* key for an emergency reset to stop the operation.

1.3 Production Monitor Setup

The HMI and controller provide you with automatic production monitoring and alarm features. The system allows you to set a desired operating range with upper and lower limits (Delta Values) for each production parameter. Once the current parameter value is outside the set operating range the machine will stop operation and the alarm will sound. For later analysis the monitoring system will record the time and the type of error that caused the alarm. To access the *Alarm/Error Message Display* screen press *F10 (Next)→ F2 (Prod).*



At the beginning of each operation, the automatic alarm is turned off until the machine has finished the pre-set number of production cycles in *Auto Operation* mode. After the number of pre-set production cycles the automatic alarm will be activated and the achieved parameter values of the last production cycle will be used as reference points for the upper and lower limits (Delta Values) of each production parameter. Should any of the current production parameters during the next production cycle and thereafter be outside the set upper and lower limits (Delta Values) the alarm will sound and machine operation will stop for trouble shooting.

After the stable of the production cycle, then the auto alarm system is executed. Before the normal operating of the machine is execute, the parameters of the production will be corrected. Therefore, you should take into consideration the auto alarm system will only execute after the stable production.

Press the *Time Auto* key to activate the *Automatic* mode. Switch the HMI display to the *Monitor 1* screen by pressing *F10 (Next)*, and pressing F2(PM) ,and pressing F3 (mon1).

First, activate the *Automatic Alarm Mode* by setting the *Auto Alarm* value to "1".

Next, set the *Delta Values* (% and/or absolute) for the production parameter control. See below for a more detailed explanation for the calculation of upper and lower limits based on the *Delta Values*.

You can use the actual production parameter value with the delta value(%)in order to built a deviation value, then use the deviation value and the reference value to build a up and down limit, if you need a group delta value(%)and delta value to get the maximum and minimum limit please use the formula under:

Upper Limit

RV + (RV * x/100) + y

Lower Limit

RV - (RV * x/100) - y

Where

RV = Reference Value
x = Delta Percentage Value (e.g. 10 for 10%)
y = Delta Absolute Value

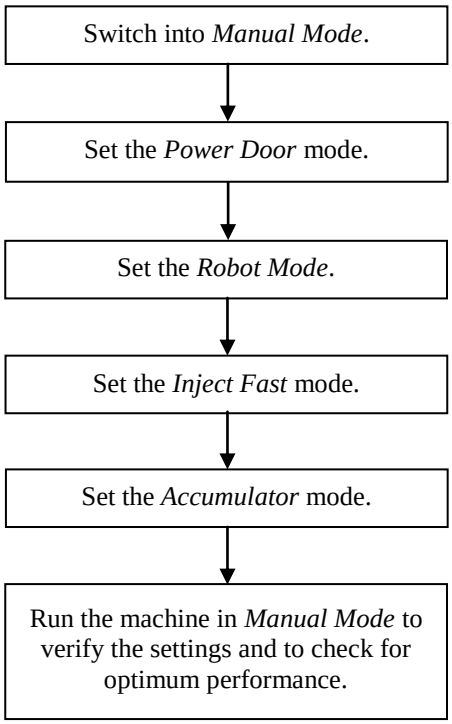
Since the *Reference Values* are not fixed and vary from one machine operation cycle to the next the values are lost once the machine is turned off. They will be re-established at the beginning of the next operation cycle by using the current parameter values to determine the new reference points for the upper and lower limits (*Delta Values*).

Under the Auto Alarm mode, if the Auto Alarm had already been activated (mode 1) or if the necessary number of production cycle for establishing the reference values has not yet been reached (mode 0), you can adjust the cycle numbers for Auto Alarm mode please press F8 enter into the parameters screen and insert the data you required.

Run the machine in automatic mode after setting all parameters until the activation of the Auto Alarm mode to verify the setting and to check for optimum performance. In case of improved production results after the activation of the Auto Alarm mode re-establish the Reference Value in Monitor 1 screen.

1.4 Other Functions and Settings

The use of optional features such as *Power Doors*, the *Robot*, the *Solenoid Valve* and the *Accumulator* is set within the *Other Functions and Settings* screen. Their availability is dependent on your machine set-up.



Press the *Manual* key to activate the *Manual* mode. Switch the HMI display to the *Other Settings* screen by pressing *F5 (Eject)*, and press F4 (Function).

Set the *Power Door* mode. If activated the *Safety Door* opens automatically (in semi-auto mode only) at the end of the cycle. The operating keys to close and open the door are activated. If this function is disabled the *Safety Doors* will not open automatically and any door opening and closing has to be done manually without the help of the power assisted operating keys.

Please note that manual *Safety Door* operation might require considerable physical strength especially when operating large machines.

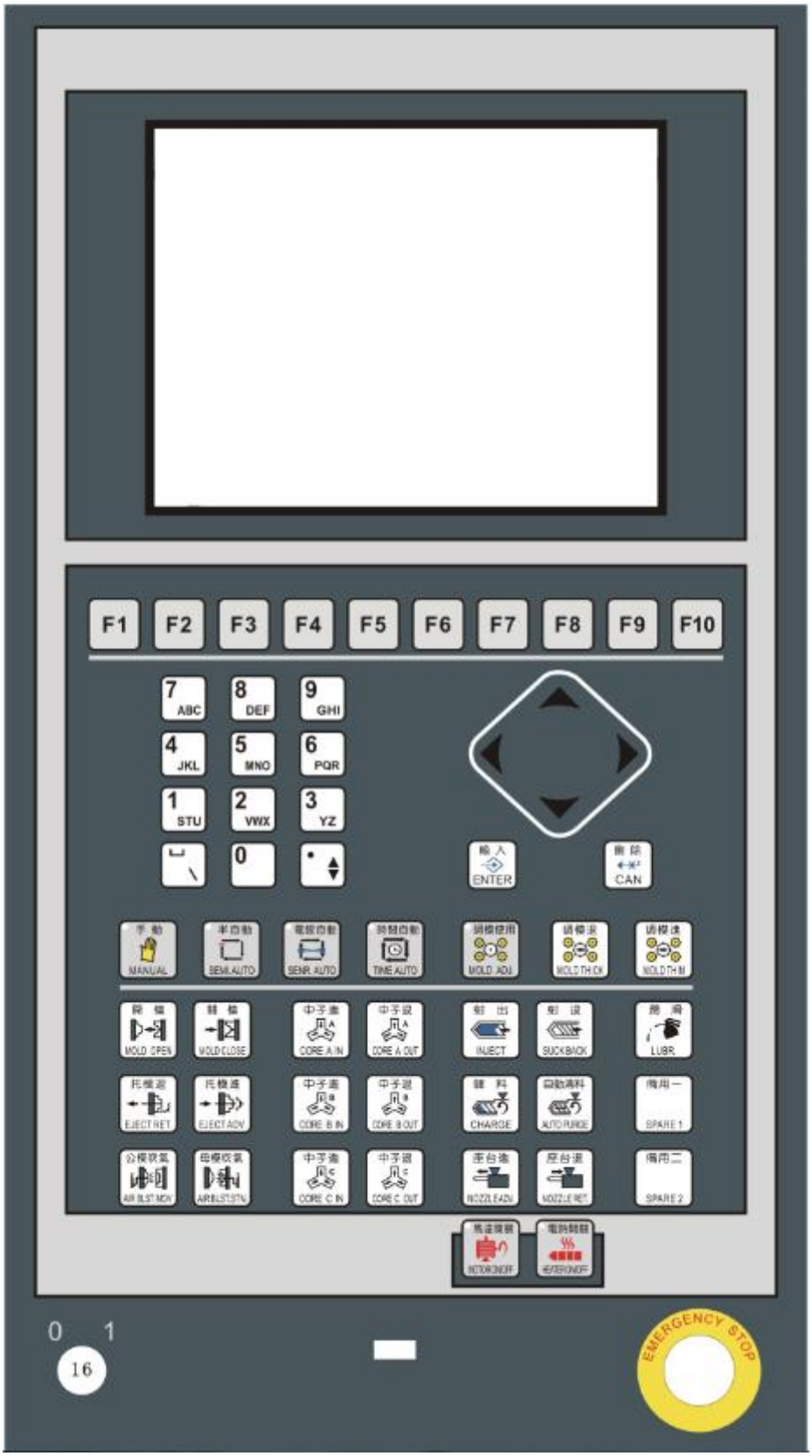
Next, set the *Robot Mode*. Activate if a robot is used for retrieving the product from the mold.

Activating the *Inject Fast* mode allows the use of an optional solenoid valve to achieve higher injection speeds.

The *Accumulator* should be activated if you need to achieve a higher injection pressure and with it the capability of higher injection speeds.

After setting all parameters run the machine in *Manual Mode* to check for optimum machine performance. If you encounter any problems during set-up press the *Manual* key for an emergency reset to stop the operation.

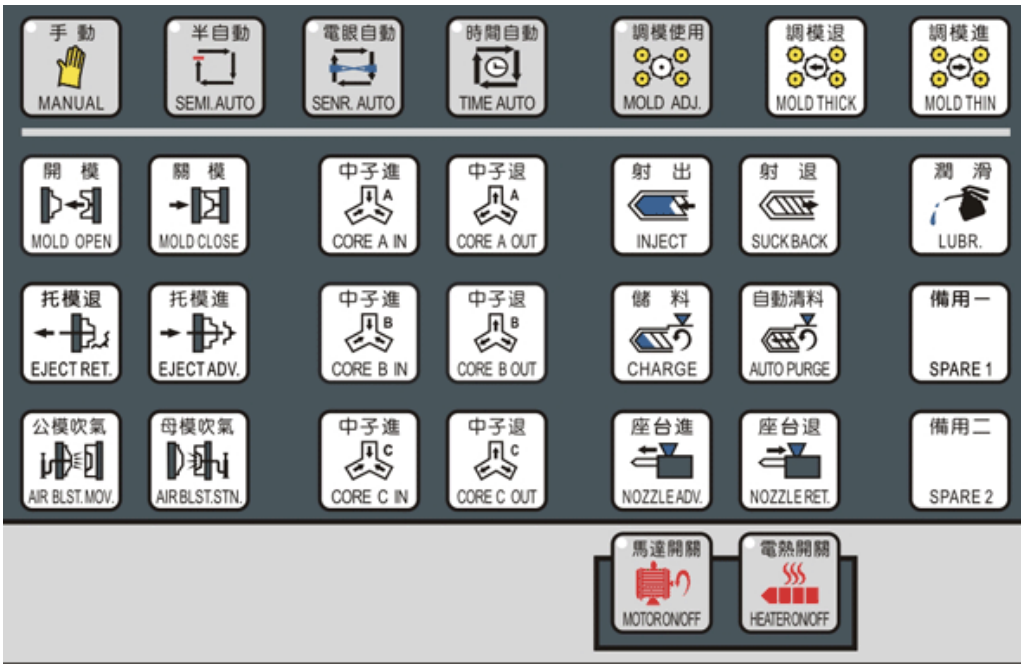
2 Control Panel (HMI)



2.1 Control Panel and Keys

The Control Panel is covered with a protective Mylar layer to make the panel water, dirt and abrasion resistant. All keys are operated through type A mechanical contact switches to provide for reliability and a long service life.

2.1.1 Machine Control Panel Keys



The machine control panel keys allow you to switch between different machine operating modes and to manually control the operation of the machine. Nevertheless, even most manual commands will be executed using the stored machine settings. It is therefore important that you verify the settings first to ensure safe machine operation.

Machine Operating Mode Keys

Manual Key: This key has various functions. It is used to change from *Auto Operation* mode to *Manual Operation* mode as well as a reset key for data and alarm settings.

Semi-Auto Key: Press this key to run the machine in *Semi-Auto Operation* mode. After each cycle you have to open and close the safety gate to start the next cycle.

Photo Sensor Key: Press this key to run the machine in *Auto Operation* mode with the Photo Sensor activated. At the end of each cycle, the photo sensor will verify whether the product has been properly ejected from the mold within 4 seconds. If the product is still in the mold the machine will automatically stop and the alarm will sound. The control display will show an '*Ejection Failure*' error message.

Time Auto Key: Press this key to run the machine in *Auto Operation* mode. Use this operation mode to let the machine execute each cycle automatically. The controller will stop the machine and the alarm will sound in case an error occurs. In this mode the photo sensor is not activated.

2.1.2 Mold Height Adjustment

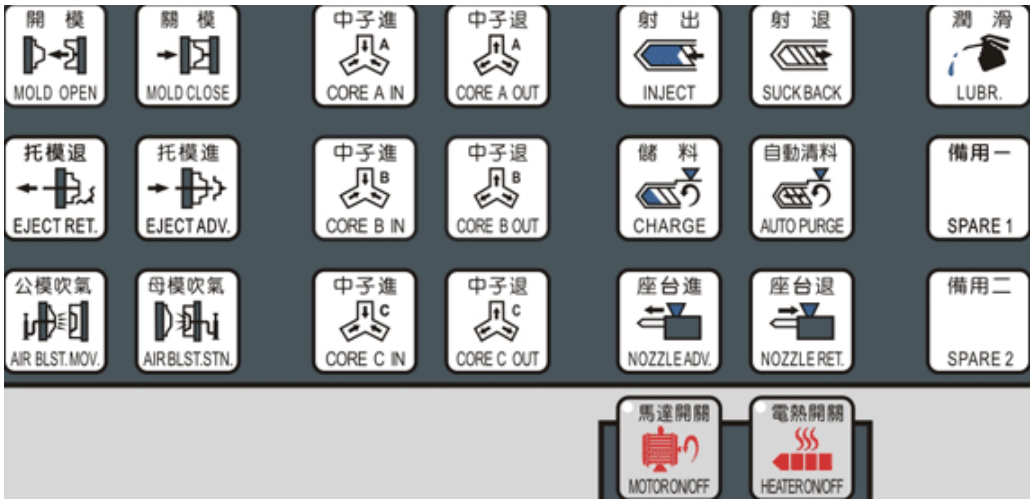
Mold Adjustment: This key provides two options of function, the first press is thick mold adjustment, the screen will display a transfer from the manual to thick mold, under this situation, mold distract and forward is able to move, meanwhile to provide convenient and safety to the mold platen. At the same time operating the open close mold, injection, charge, suck back, nozzle in and out pressure and speed eventually use the internal low pressure slow speed, the position of pressure speed will not change while operating, however mold open, charge and injection distract will stop when they reach the position. Therefore, please use the thick mold which setting the mold platen.
The second selection will be the automatic mold adjustment, when the operator had done fixing with the mold platen, please set the pressure, speed, position and any other parameters etc, then close the safety door, press the Manual Mold Height Adjustment key again to execute an automatic mold height adjustment until all preset parameters and conditions had been reached. When the machine gives an alarm, it means the work had been finished, and you can continue to do the next step operation.

Just press Manual key to turn back to Manual mode. It is not allowed to change into Auto mode from any Mold Height Adjustment mode directly.

Increased Mold Height Adjustment key: same to the function of the above key, only the direction is opposite. The mold adjustment is moving backward. When the mold height is adjusted to the maximum position, the limit switch will be activated and mold height increase will stop.

Reduced Mold Height Adjustment key: Under the Manual Mold Height Adjustment mode, you can press this key to reduce mold height roughly; If you press this key and release immediately, the platen will move slightly and stop, allowing for micro mold height adjustment. The reduced mold height will depend on how many times you press this key. If you press this key and hold it for one second, the mold plate will move continuously, release the key to stop the movement.

2.1.3 Manual Operation Mode Keys



Open Mold Key: While in *Manual Operation* mode, close the safety gate and press and hold this key to open the mold. Once you release the key mold opening will stop. If core(s) are used they will be moved according to the settings. Press *F6 (Cores)* to view the core settings. Please note that you can use the *Open Mold* key in *Manual Operation* mode only.

Close Mold Key: While in *Manual Oper*ation mode, close the safety gate and press and hold this key to close the mold. If core(s) are used they will be moved according to the settings. Press *F6 (Cores)* to view the core settings. In case a robot is installed it must be reset. If the ejector is in knockout position, it will retract before the mold closes. Once you release the *Close Mold* key mold closing will stop. Please note that you can use this key in *Manual Operation* mode only.

Ejector Retraction Key: Use this key in *Manual Operation* mode to retract the ejector. Ejector movement will stop once the key has been released or the back limit has been reached. Please note that you can use this key in *Manual Operation* mode only.

Ejector Activation Key: Use this key in *Manual Operation* mode to activate the ejector. Before the ejector can be activated the mold has to be opened completely, all cores have to be retracted and the ejector has to be positioned between the limit switches. The ejector will be activated according to the *Ejector* settings. Press *F5 (Eject)* to view the settings. Please note that you can use *Ejector Activation* key in *Manual Operation* mode only. If necessary press the *Manual* key for an emergency reset to stop the operation.

Air Blast Moving Platen Key: Use this key in *Manual Operation* mode to activate the air blast for the moving platen. The current air blast settings will be used. Press *F5 (Eject)* to view the settings. Please note that you can use this key in *Manual Operation* mode only. If necessary press the *Manual* key for an emergency reset to stop the operation.

Air Blast Static Platen Key: Use this key in *Manual Operation* mode to activate the air blast for the static platen. The current air blast settings will be used. Press *F5 (Eject)* to view the settings. Please note that you can use this key in *Manual Operation* mode only. If necessary press the *Manual* key for an emergency reset to stop the operation.

Core A In 

Core A Out Keys: Press the *Core A In* key to enter the core function option. Press the core in or core out key under the manual mode any core movement will be executed according to the current settings at any position of the open and close mold.

Core B In 

Core B Out: Selection of the function of Core B, press the core in or core out key under the manual mode any core movement will be executed according to the current settings at any position of the open and close mold.

Core C In 

Core C Out: Selection of the function of Core C, press the core in or core out key under the manual mode any core movement will be executed according to the current settings at any position of the open and close mold.

Injection Key: Under the manual mode, when the temperature is "ON", the barrel's temperature had reached and had also reach the preset temperature value. Press

this key to inject and during the movement, the set value will enter into pressure protection according to different stages then enter into the end of the pressure protection pressure and speed. Once u release this key then the injection will stop.

Suck back Key: Press this key to retract the ejector. Ejector movement will stop once the key has been released or the back limit has been reached.

Charge (Plasticizing) Key: Use this key in *Manual Operation* mode to charge the injection unit. Press and release this key to start charging (plasticizing). The operation is automatically stopped once charging has been completed. If necessary, press and release the *Charge (Plasticizing)* key again to stop charging immediately. If *Suck-Back* is required the controller will initiate *Suck-Back* automatically according to the current settings. Press *F3 (InjSpc)* to view the settings.
Please note that you can use this key in *Manual Operation* mode only.

Auto Purge Key: While in *Manual Operation* mode, press this key to activate *Auto Purge*. The current *Auto Purge* settings will be used. Press *F3 (InjSpc)* to view the settings. Please note that you can use this key in *Manual Operation* mode only. If necessary press the *Manual* key for an emergency reset to stop the operation.

Nozzle Advance Key: Press and hold this key in *Manual Operation* mode to move the nozzle and injection unit forward. Release the key to stop movement. Please make sure the nozzle advance limit switch (located on the machine) is activated to prevent damage as a result of the nozzle colliding with the mold. For safety reasons the nozzle and injection unit will slow down once it is moving close to the mold.
Please note that you can use this key in *Manual Operation* mode only.

Nozzle Retraction Key: Press and hold this key in *Manual Operation* mode to retract the nozzle and injection unit. Release the key to stop movement. Please note that the nozzle retraction limit switch is deactivated during this operation to permit maximum injection unit movement. This allows for easy cleaning and maintenance. The nozzle retraction limit switch is only activated while using auto operation modes. Please note that you can use this key in *Manual Operation* mode only.

Hydraulic Pump Motor On/Off Key: Press this key in *Manual Operation* mode to start the hydraulic pump motor (customer installed), press it again to stop the motor. Please note that you can use this key in *Manual Operation* mode only.

Heater On/Off Key: Press this key in *Manual Operation* mode to start heating the barrel, press it again to stop heating the barrel. The heater will use the current barrel

heating settings. Press *F8 (Temp)* to view the settings. Please note that you can use this key in *Manual Operation* mode only.

Lubrication Key: Press and hold this key in *Manual Operation* mode to start the lubrication oil pump (customer installed). Release the key to stop the pump. Please note that you can use this key in *Manual Operation* mode only.

2.1.4 Data Entry Keys

The keys described in this section are used for numerical and text input.

Important: In order to avoid any loss of data and/or settings make sure you have saved the current mold set again before loading a new mold. If you fail to do so any settings changes you may have made will be lost.

When you turn off the controller/machine the current settings will be saved as the working mold set. Nevertheless, you need to save the mold set again before loading any new mold set since any changes you made have not been saved in the mold set database, only as the working mold set settings.
It is also important to note that you need to leave the current screen before you turn off the controller/machine since any changes will be saved only after you have left the screen you have used to make the changes. If you turn off the controller/machine without exiting the current screen any changes you may have made within this screen will be lost.

If you are unsure if the current settings have been saved always save the current mold set into the mold set database.

Numerical Keys

Use the number keys to enter numeric values. The controller has a pre-set minimum/maximum for most values that cannot be exceeded. If you try to enter a value that exceeds the pre-set minimum/maximum you will not be able to leave the current entry field until a correct value has been entered.
Pressing *Enter*, *Y* or an arrow key will confirm the input and move the cursor to the next input field. In order to use the numerical keys you have to unlock the key pad by turning the *Num. Lock Key* in the lower left corner of the control panel to position 1.

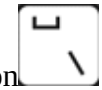
If you need to enter the alphabet for example: A then enter 

press two times then will become A if enter B then press 

twice, and so on.

Screen Saving Key

The movement under should be activating under manual mode:

1. inserts the SD card or USB to the machine.
2. turn to the screen of printing，press this button  twice .
   Next, "**ER: loading MMC card**" will appear at the left bottom column，it means the printing is in the process.
3. A screen will pop up from the window in about 2 or 3 seconds which means that the printing is in process and will be save into SD/MMC card，after that press 

to confirm.

4 insert SD/MMC card and connected to the pc machine，enter print file，in side the file it include the screen that after printing.

ATTN：User can use different language to process the actions above

Input Dialog Box Confirm/Cancel Keys

Enter key 

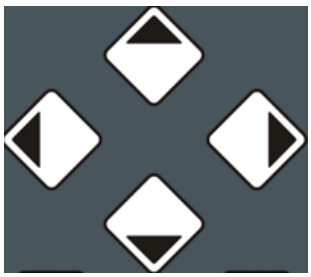
: After the insert of the value, press this enter key to indicate the saving other data, press once the enter key to move the cursors to the other position. This key is able to represent the direction key.

Warning: Before you renew the mold platen, if you want to change any set documents, you have to resave the mold data again. If you did not do so, the new data will disappear.

Cancel key 

: Pressing this key cancels the changes you may have made within the current field and resets the current value to "0".

Arrow Keys:



Arrow Keys: Use the arrow keys to change the current field selection and to move the cursor. Please note that the arrow keys move the cursor only within the current column (up/down) or line (left/right). If the field you are trying to select does not overlap with the currently selected column or line using the arrow keys will not allow you to jump to the desired field unless you use a combination of left/right and up/down movements you can use the enter 

key to reach the desired position.

Notice：After you change the data and willing to move the cursors to another position, the original data after corrections will be saved.

Screen Selection Keys

The *Machine Settings Panel* provides 10 keys (*F1 – F10*) for screen selection. The entire set of keys has two different menus (A and B).
A group included 8 groups of vice menu (mold platen, injection, charge, ejector, core, nozzle, temperature and fast set)
B group including 7 groups of vice menu (production monitor setup, correction, IO, mold platen others, system, and version)

A:

B:

You can choose the display screen you needed from the screen below and you can use F10 key to transfer between two main options, and also to return from the vice option to the main option.

When choosing any of the display screen, if the vice menu is not display, then the option will turn white and display the above situation. On the other hand, if the display screen appears vice menu then the display screen will change into another display screen.

If the option you select includes a vice menu, the display screen and option will change together.

For example: Press F2 mold platen, then the mold platen screen and the display screen below will appear in chorus.

2.2 HMI Display

2.2.1 Screen Selection

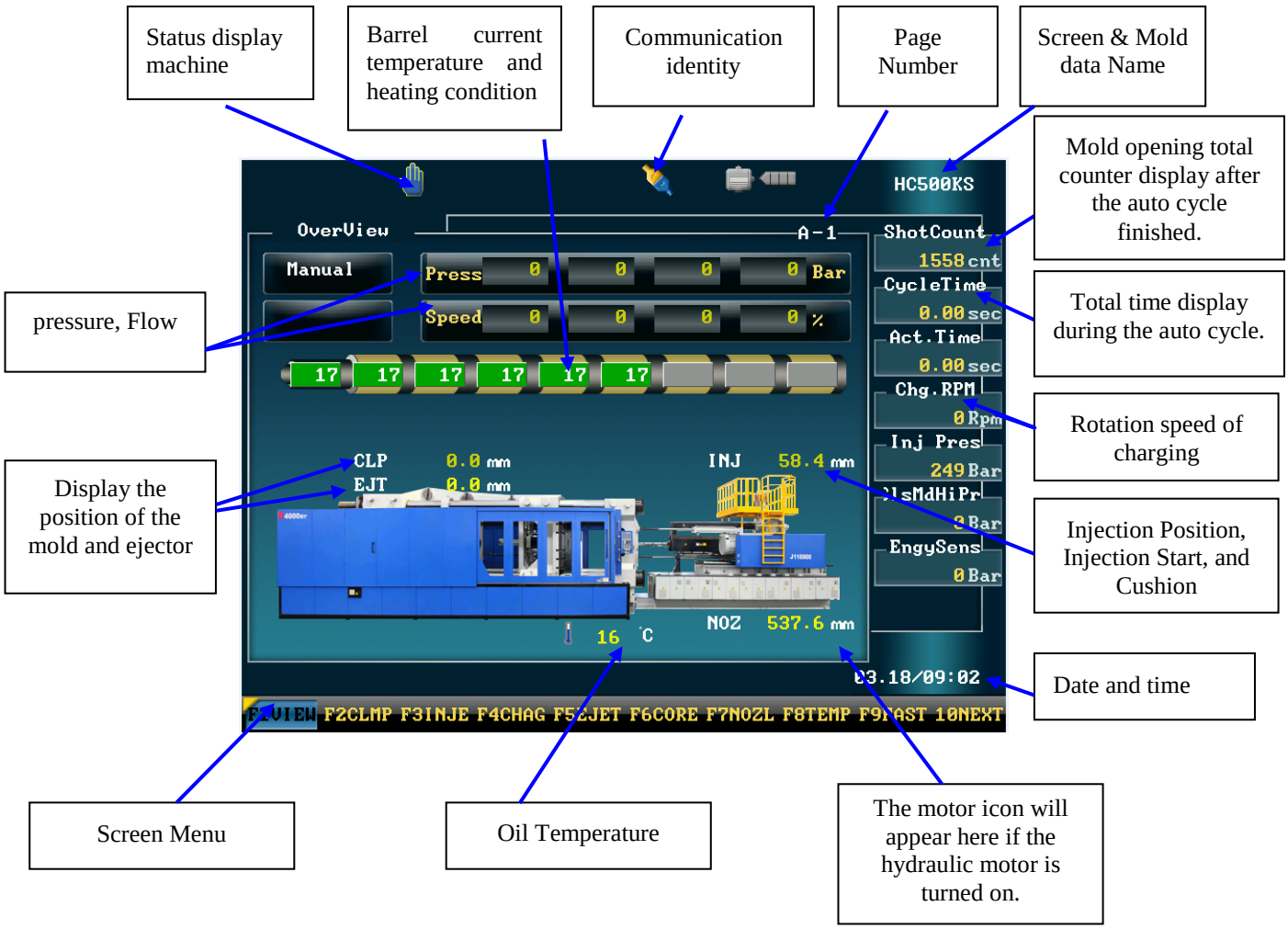
To access any of the screens described in this section please use this graphic as a reference:

F1 View											
F2 CLMP	→	F1 VIEW	F2 CLMP	F3 FUNC	F4 PARA1	F5 PARA2	F6 SPPA		F8 EJET	F9 CORE	F10 BACK
F3 INJE	→	F1 VIEW	F2 INJE	F3 FUNC	F4 PROF	F5 PARA	F6 SPPA		F8 CHRG	F9 NOZL	F10 BACK
F4 CHRG	→	F1 VIEW	F2 CHAG	F3 PURG	F4 FUNC	F5 PARA	F6 SPPA		F8 INJE	F9 NOZL	F10 BACK
F5 EJET	→	F1 VIEW	F2 EJET	F3 BLST	F4 FUNC	F5 PARA	F6		F8 CLMP	F9 CORE	F10 BACK
F6 CORE	→	F1 VIEW	F2 COR1	F3 COR2	F4 COR3	F5 FUNC	F6 PARA		F8 CLMP	F9 EJET	F10 BACK
F7 NOZL	→	F1 VIEW	F2 NOZL	F3 PARA				F7 INJE	F8 CHRG	F9 CLMP	F10 BACK
F8 TEMP	→	F1 VIEW	F2 TEMP	F3 TIME	F4 PARA						F10 BACK
F9 FAST	→	F1 VIEW	F2 FAST	F3 ADJM	F4 PARA		F6 CLMP	F7 INJE	F8 CHRG	F9 EJET	F10 BACK
F10 NEXT											

F1 VIEW											
F2 PM	→	F1 VIEW	F2 ALAM	F3 MON1	F4 MON2	F5 MON3	F6 PROF	F7 CONT	F8 PARA		F10 BACK
F3 REVS		F1 VIEW	F2 AD	F3 DA1	F4 DA2	F5 DA3	F6 DA4			F9 CHRG	F10 NEXT
F4 I/O	→	F1 VIEW	F2 PB1	F3 PB2	F4 PC1	F5 PC2	F6 A IO	F7 PA	F8 DIAG		F10 BACK
F5 MOLD	→	F1 VIEW	F2 MLDS	F3 MLDR	F4 MLDC	F5 MLDD	F6 MACH	F7 RECD			F10 BACK
F6 OTHR											
F7 SYST	→	F1 VIEW	F2 SYST	F3 CONF	F4 DATA	F5 REST	F6 SEQN	F6 INST			F10 BACK
F8 VERS	→										F10 BACK
											F10 NEXT
F10 BACK											

For a more detailed explanation of how to use the screen selection keys (F1 through F10) please refer to the *Screen Selection Keys* section of this manual.

2.3 Control Panel(A-1)



Warning: Situation display above, mold platen name, motor movement situation, open mold total amount timing and at the below part had point out the date, time of display key will be shown in any of the screen

2.4 Clamp Settings

include F2 Mold, F3 Function， F4 Para1 , F5 Para2 and F6 Sppa

2.4.1 Clamp open/close mold settings(B-1)

Path- **Main screen → F2 mold → F2 mold**

F2 Mold

Mold Opening Stroke: Sets the distance the mold will travel between mold closed and mold open positions.

Mold Opening and Closing Settings: *Mold Closing* and *Mold Opening* is divided into 3 phases each. Pressure and speed settings can be adjusted separately for each phase. The transition between each phase is controlled by the corresponding position settings. The corresponding *Mold Closing* and *Mold Opening* profiles are displayed in the Pressure-Position Graphs on the right hand side (Mold Closing top, Mold Opening bottom).

Auto Cycle Delay Time: The delay time between molding cycles, usually for robot use.

2.4.2 Open/close mold function settings(B-2)

Path- **Main screen → F2 mold →F3 function**

F3 function

Close Mold: it could set for close mold if need 3 column please enter 3

Open Mold: it could set for open mold if need 3 column please enter 3

Re-cycle timing: Remain time after a cycle is done and between the time entering into another new cycle.

Open /Close fast: if the section has been chosen, it will fasten the speed of processing

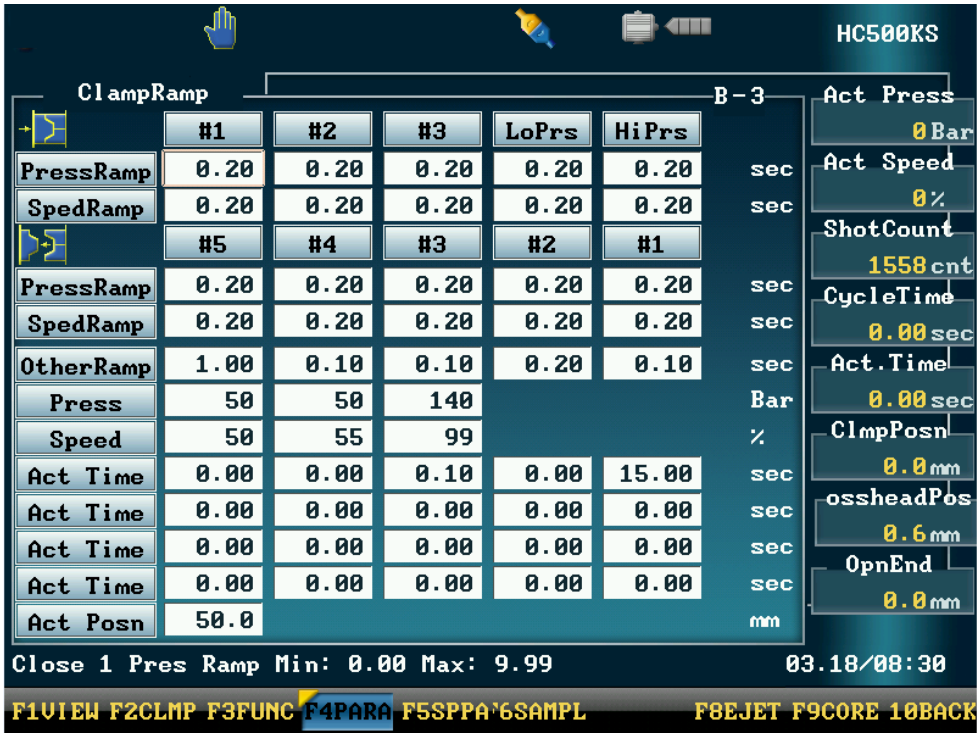
Open mold continuous moving: You can either choose use or not use the ejector or core (A/B/C).

Continuous moving position: The position of the movement starting point.

2.4.3 Open/ close mold parameters settings(B-3)

Path- **Main screen → F2 mold → F4 PARA**

F4 PARA

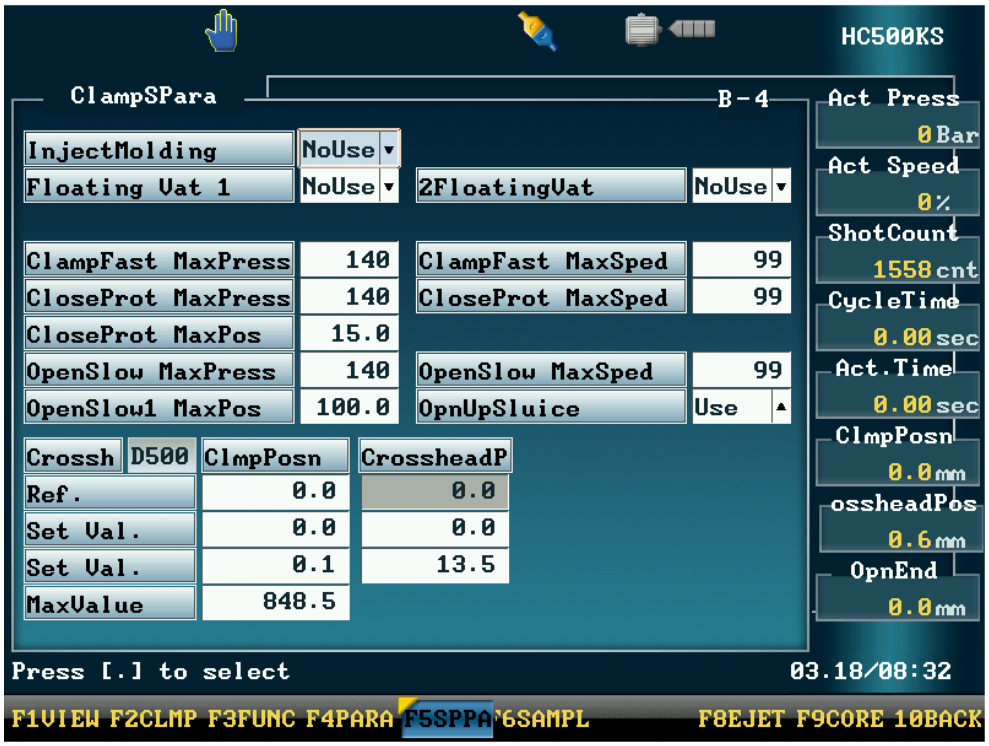


This photo including Clamp Settings and all the other parameters (detail information please referral to the Para chart)

2.4.4 Open /close mold Special parameters(B-4)

Path- **Main screen → F2 mold → F5 SPPA**

F5 SPPA



2.5 Injection settings

Including F2 injection, F3 function, F4 profile, F5 parameter and F6 Sppa

2.5.1 Injection Settings(C-1)

Path- **Main screen → F3 Inje → F2 Injection**

F2 Injection

Injection and hold pressure: Due to the injection control, it is divided into injection and hold pressure, injection is divided into 4 stages, each stages has its own pressure and speed setup , transition of each stages is used according to the position distance to transit the pressure and speed, it's is suitable for different kinds of complicated , high precision mold platen , however injection hold pressure is available to transit by time, or by using position transit or both, the perform is due to the consideration of the mold platen's formation , the flowing and efficiency of the raw materials, there are many different ways to modulate but all the modulation are basically included.

Hold pressure used three stages of pressure, speed, transition is function according to the position of time or pressure, until the last timing was done, it means that the injection procedure is completed and continues by the next step.

The user can also use the permanent injection timing to inject by setting the hold pressure position to zero, to prevent the hold pressure to reach the transition point, the manual injection time is equal to the actual injection time however the sensor function will be lost, and the low quality products will be hard to discover and lack of immediate modulation.

Due to the difference of flowing of every mold barrel, the smaller the variation is the higher the products quality will be, therefore the computer will check during the starting point of the injection , the injection movement timing and the sensor part . Please take notice that the alarm will be alert when the limit is overtaken.

Hold pressure transform: Pressure protection after the injection is mainly divided in to 3 types.

Position selection will be made after the hold pressure reach the position; times selection will be made when the injection time reach the transformed hold pressure; pressure selection is made when the hold pressure reach the transformed hold pressure

hold pressure：The transformation way selection: Under the pressure condition this setup is available.

Injection time: The injection time is normally longer than the actual time, it is because when the hold pressure reached its transit point the computer will stop the injection time, therefore when the raw material flowing is not in the best condition, the actual timing will be longer, and the transit point will reach later, however during the good condition of the raw material flowing the transit point will reach efficiently, at the moment the actual timing will be shorter. In order to differentiate both of these, we provide a highest and lowest limit, it means that the actual timing of injection should not overtake the limit it is because the production out of this scope will be considered as bad quality products.

When the hold pressure transform is using the injection position controller, when the injection of 6 stages position ends when the screw is reached , it is transform to the hold pressure, if the point is not reached, then the transform will happen when the upper limit time is reached. Therefore, this time setting value will normally be longer then the injection timing, when the transform timing is selected the 4 stages end position will not be displayed, and the upper limit 000.0mm will change to movement000.0sec, at the moment the injection will activate according to the time set.

2.5.2 Injection function Settings(C-2)

Path- **Main screen → F3 Inje →F3 Func**

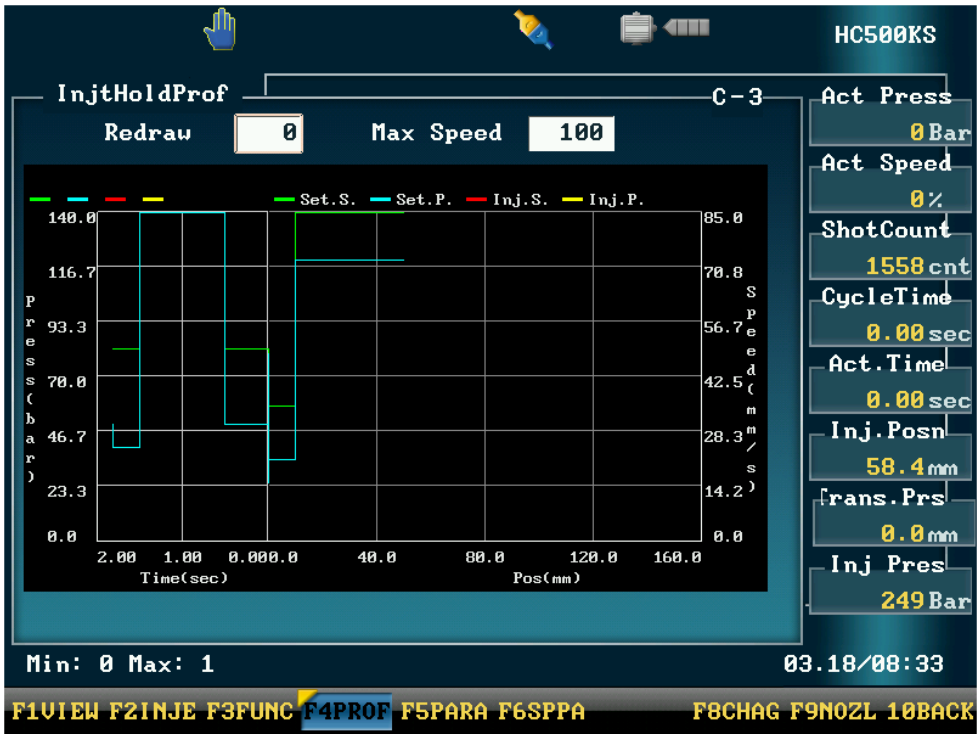
F3 Func

Inject Rank：could be divide into three zone if need it then enter **3**。
Hold Rank：could be divide into three zone if need it then enter **3**。
Accumulator：when choosing accumulator, the machine can reach to the max speed。
Inject Fast：If you have choosing this function, will increase the valve
Inj. Shut Off：only can be use if the machine has it

2.5.3 Injection Profile Settings(C-3)

Path- Main screen → F3 Inje →F4 Prof

F4 Prof



Pressure – Position graph of the current injection settings and the values achieved during the current Injection/Hold Pressure cycle. The values are displayed in real-time.

Speed Curve Ratio (optional): This setting allows you to adjust the displayed speed curve if it should exceed the graph's value range (e.g. the curve "leaves" the graph). The present value is 100.
If you change the ratio to 50 the displayed graph value will actually be 50% of the true value. This allows you to flatten the speed curve if some of its values should exceed the values indicated by the graph.

Example:

You are reading off the peak of the injection speed. Taking the highest point of the curve you go to the right border of the graph to read off the corresponding value. If the value is 60 and the Speed Curve Ratio is 100 then the actual peak injection speed would be 60. If you now set the Speed Curve Ratio to 50 you will notice that the curve becomes considerably flatter. When reading off the peak speed again you will find the corresponding value to be 30 (50% of the true value which is still 60).

Set P (Set Pressure): The black line indicates the preset pressure for Injection and Hold Pressure.

Inject P (Injection Pressure): The red line indicates the actual pressure achieved during the last Injection/Hold Pressure cycle.

Inject S (Injection Speed): The blue line indicates the actual injection speed achieved during the last injection cycle.

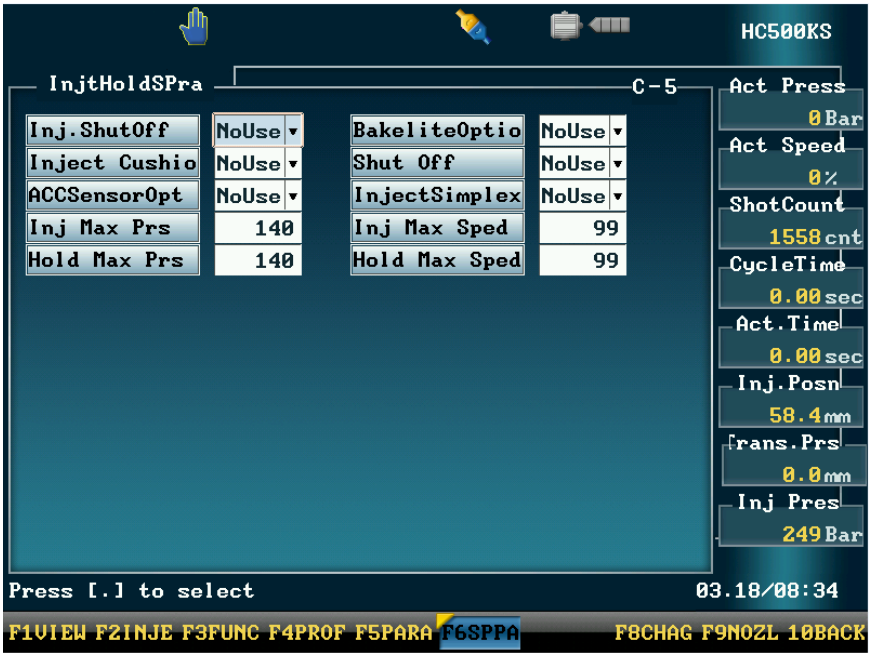
2.5.4 Injection parameters(C-4) (C-5)

Path- Main screen → F3 Inje →F5 Para/F6 Sppa

F5 PARA

This photo including Injection Settings and all the other parameters (detail information please referral to the Para chart)

F6 SPPA



2.6 Charge (plasticizing) and suck-back settings

Including F2 charge、F3 cleaning、F4 function、F5 parameters and F6Sppa

2.6.1 Charge and suck-back settings(D-1)

Path– screen → **F4 charge → F2 charge**

F2 charge

Charge setting: Charging process, a total of 5 stages of pressure, speed control, are free to set its start, the necessary pressure and the speed and location at the last and middle paragraph.

Suck back setting: Suck back setting of pressure speed is divided into position or time. If position is selected you only need to insert the suck back distance, if you are not using the suck back please set the time and position to 0.

Cool Delay: Reserve before the cooling time can also be done before the charge is expected to use the cooling function.

Cool Time: After injection began cooling time.

2.6.2 Automatic barrel clean-up settings(D-2)

Path– screen → **F4 charge** → **F3 cleaning**

F3 cleaning

Cleaning frequency: According to the actual demand to setup the cleaning frequency, the maximum setup is 99 times.

Notice：When the machine is activating the production normally, if the screw last position is too big (current location) after the product is completed. When the operator is willing to correct the value, changing of the corresponding data is according to the charging and injection. However this function could simplify the operation if only to insert the final position of the injection at the correction column and select use at the “remain storage corrections” column to complete the auto correction of all the charging injection position.

Time: According to the actual demand to setup the cleaning time.

2.6.3 Charge function settings(D-3)

Path– screen → **F4 charge** → **F4 function**

F4 function

Charge: The Rank setting of charge

Charge back pressure valve：You can either choose output or not output during the charge back pressure valve.

Suck back control mode: When the selection of the suck back time control is selected, the suck back position settings column unit will change to time which means suck back movement timing settings are available.

Suck back control before charging：Selection of time and position control is available during the suck back movement before charging.

Charging control once again: Selection of position and time control is available during charging before injection.

2.6.4 Charging parameters settings(D-4) (D-5)

Path – screen → **F4 charge → F5 parameters / F6 Sppa**

F5 parameters

This screen consists of all corresponding parameters during charging settings. (Please refer to the parameters index for further information)

F6 Sppa

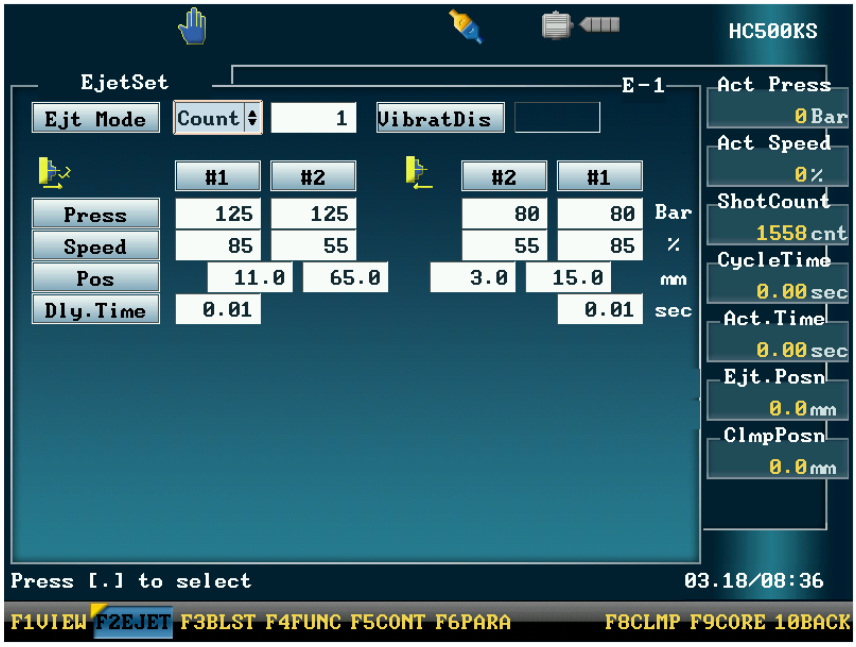
2.7 Ejector

Including F2 Ejector、F3 Blast 、F4 Function and F5 Parameters

2.7.1 Ejector settings(E-1)

Path- **Main screen → F5 EJET →F2 EJET**

F2 EJET



Ejector settings：

The initial ejection is divided into two phases that can be controlled separately. You can set pressure, speed and activation position individually for each phase. If you require additional cooling of the mold product after mold opening set the delay time for ejector activation accordingly.

Ejector mode：Ejector mode consists of 3 different kind of options ;

Stop： Use this function when ejector stop, uniformly used under semi auto mode, automatic mode is not available, the thimble will push then stop to await for the extraction of the production, the thimble will only move backward after the power door is closed . After the thimble movement then the close mold will activate.

Frequency： The ejector frequency is count according to the setup value of the ejector frequency.

Vibration： It is the ejector vibration, the thimble will rely on the frequency set and will activate a short term high speed backward and forward ejection when the forward ejector reach the end which will cause a vibration and a fall off of the production(the vibration time please refer to the ejector column)

Eject Count (Ejection Count): The number of times the ejector will be activated. Setting this value to “0” will deactivate the ejector.

Position: Set here the end position for ejector retraction between repeated activation (in case of multiple ejector activation). Please note this position is relative to the absolute retraction end position that is used after final ejector activation and determined by the transducer zero point setting.

2.7.2 Air Blast Settings(E-2)

Path- **Main screen → F5 EJET →F3 BLST**

F3 BLST

Blast ：We provide fixed-blowing activities template (optional), which included A, B, C, D, E, F group blasting to control the position of the action point, timing delay of the blasting time. If the ejection is done, mold close will only be activated after the blasting is completed.

2.7.3 Ejector function settings(E-3)

Path – screen → **F5 EJET → F4 FUNC**

F4 FUNC

Robot: In order to operate with the automatic production of the production department, therefore robot is used to replace the workers to extract the injection products. Therefore after every completion of open mold the robot will automatically extract the products. Besides, in order to protect the mold platen and the robot the computer of our company will ensure that the robot has returned to its position in reserve before the close mold then close mold will be activate.

Automatic power door: If there is an installment of pneumatic or oil pressure power door, selection of this function should be set if not the power door key on the operating panel will be insufficient.

Manual：Manual air blow, Example：when set=0,press this key 

then move platen air blow。When set=1,

Enter this key 

then C set air blow。setting=2, press this key 

then E set air blow。

2.7.4 Ejector Parameters(E-5)

Path- **Main screen → F5 EJET →F6 PARA**

F6 PARA

This photo including Ejector Settings and all the other parameters (detail information please referral to the Para chart)

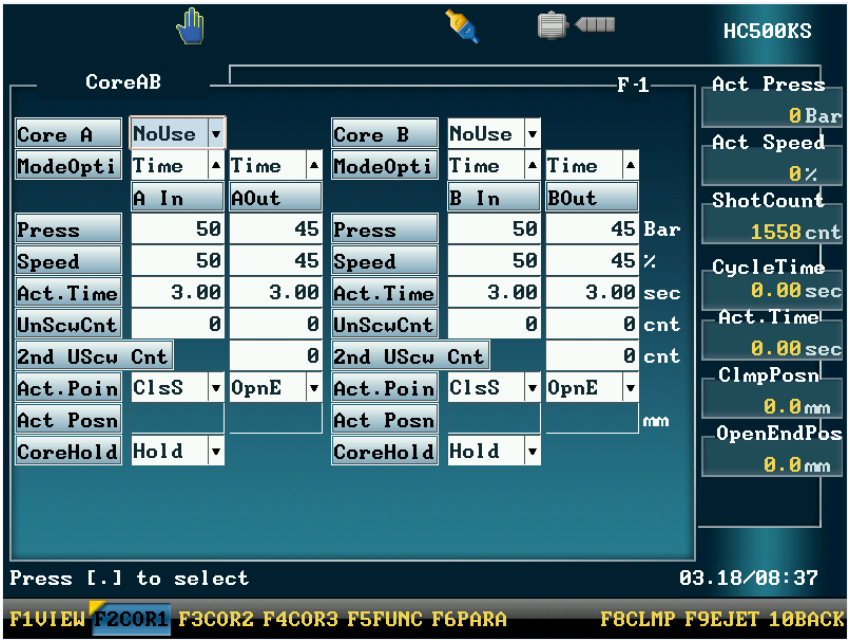
2.8 Core(s) Settings

Including F2 core 1, F3 core 2, F4 core 3, F5 function and F6 Parameters

2.8.1 Core1, Core 2, Core3 Settings(F-1) (F-2) (F-3)

Path– screen → **F6 core → F2 core 1/F3 core 2/ F4 core 3**

F2 core1



F3 core 2

F4 Core 3

Core means core in and core out movement, it's also a injection of a core when mold platen needs a mold close procedure, while during the open mold procedure the core was suck out and return to its original form, this function basically is used for a cannular mold platen. Under a auto mode condition injection and core move forward at the same time to prevent the core from being contracted when injection. Therefore core and screw is not allowed to use for the same function.

Function：Selecting core mode, it is a core in movement, selecting screw mode it means the products need manufacture with grains, with the help of oil pressure motor to activate turning and position fixing control. (When you are using the function above, please check the motor if there is a oil passage switch, it is because this function is a non standardize equipment)

Core setting: The computer can provide at least 6 group of core control which is depends on the motor oil passage equipment every group of core can set separately according to your require including the pressure, speed, movement time, movement position setup.

Control：If a core mode is selected, you can either choose the distance control or the time control. If a screw mode is selected, you can either choose counting control or time control.

2.8.2 Core Function(F-4)

Path- screen → **F6 Core** → **F5 FUNC**

F5 FUNC

Core Pull：Maximum 6 groups of core setting usage is available

Manual core：Operating panel only provide A B C three groups of operating key. Select this if you want to operate core D E F group manually.

When the setup is 1, press 

to change to D group core forward and backward.

When the setup is 2, press 

to change to E group core forward and backward.

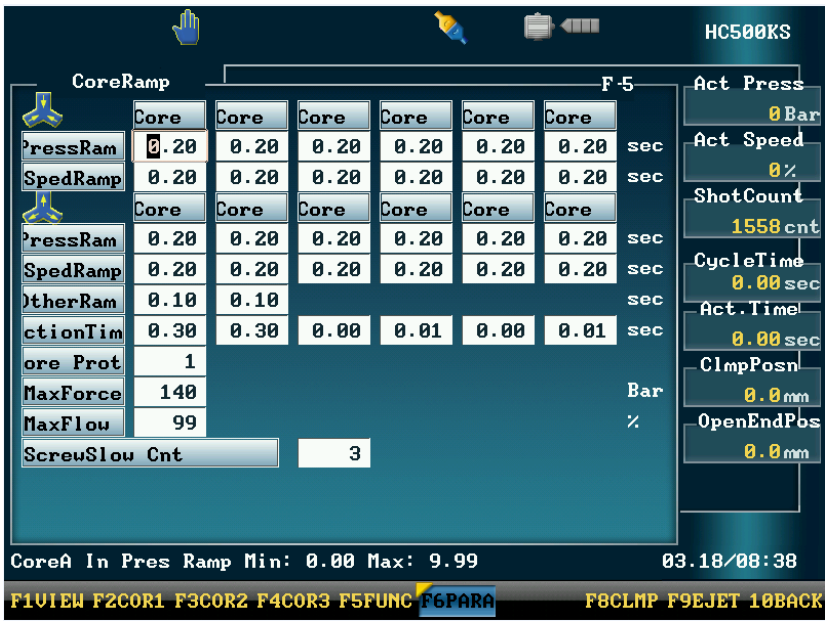
When the setup is 3, press 

to change to F group core forward and backward.

2.8.3 Core Parameters(F-5)

Path- **screen → F6 CORR →F6 PARA**

F6 PARA



This photo including Core Settings and all the other parameters (detail information please referral to the Para chart)

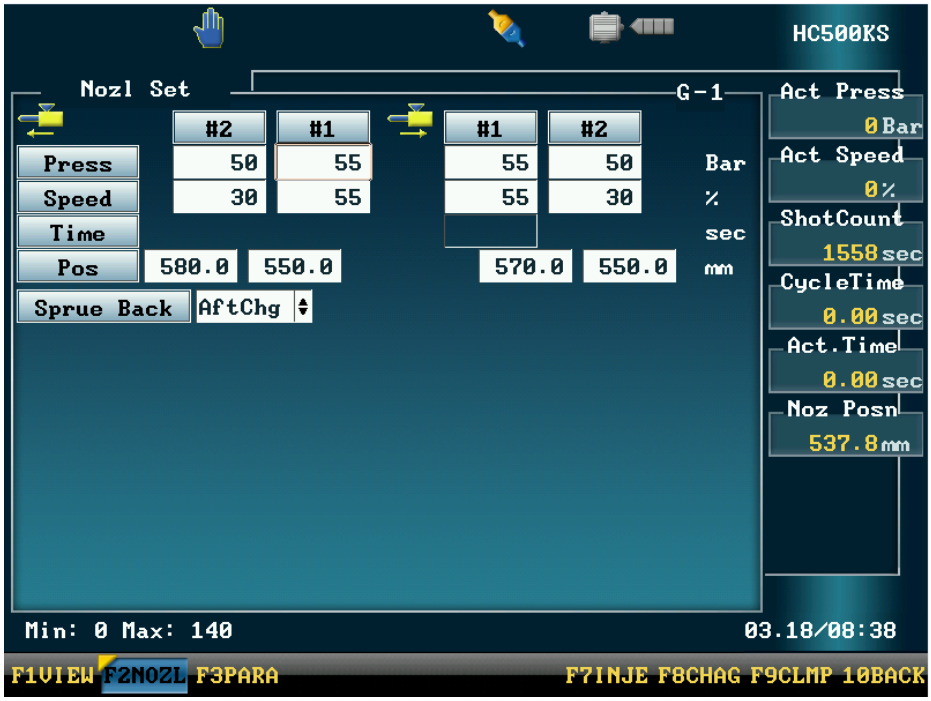
2.9 Nozzle Settings

Including F2 nozzle、F3 parameter

2.9.1 Nozzle Setting(G-1)

Path– screen → **F7 nozzle → F2 nozzle**

F2 nozzle



Nozzle setting

Pressure: Set here the hydraulic pressure for Nozzle advance and retraction.

Speed: Set up suitable nozzle high speed and slow speed action, when the nozzle move in a high speed to the final position, nozzle forward will change to a slow speed movement until the slow speed timing is done.

Position: Nozzle move forward to the final position will change the speed from high speed to low speed, considering changing to slow speed before 20mm of the final position to allow the shut off to reach the mold platen by using the rotation power which is very important. It is because if the position setting is not accurate, the nozzle will not decrease the speed, the mold platen and shut off will damage because of the strength while they contact.

Warning: Nozzle position, the forward the figure is the bigger the figure will be. If the nozzle distract position is 0, the nozzle will distract to the end.

Nozzle distraction mode: Not necessary ＝ means the nozzle is not operating

After the charge＝ Nozzle distract after the charge ends

Before mold open ＝ Nozzle distract before the mold open(means the cooling time has reached) 。

After the injection＝ Nozzle distract after the injection.

2.9.2 Nozzle/Mold Parameters (G-2)

Path– screen → **F7 nozzle → F3 parameter**

F3 parameter

This photo including nozzle and molding and all the other para (detail information please referral to the Para chart)

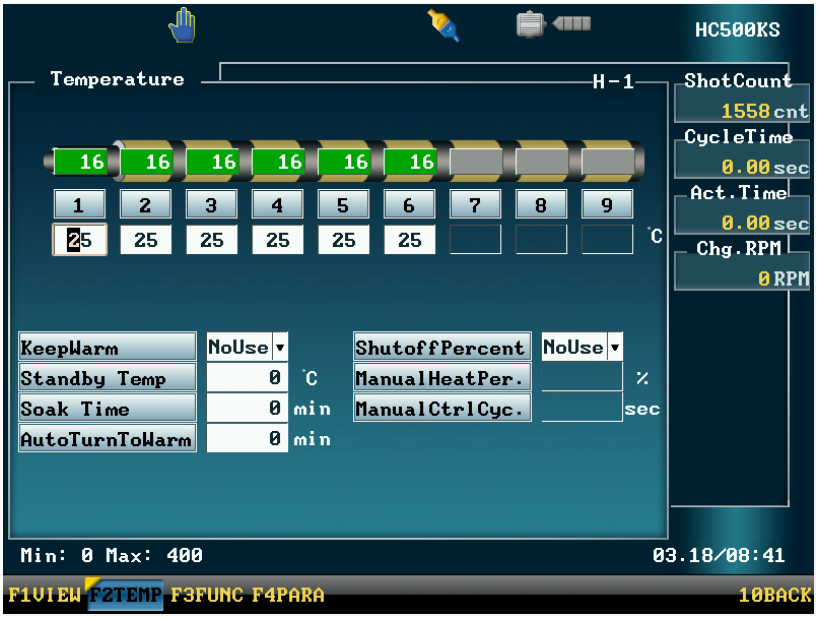
2.10 Temperature Control

Including F2 temperature, F3 timing and F4 parameter

2.10.1 Temperature Settings(H-1)

Path– screen → **F8 temp → F2 temp**

F2 temp



Maximum temperature preset value 450℃。

Keep warm function：Use  to select “not use” .When it shows ”use”, then the actual temperature is set according to the preset warming temperature.

Anti-cold start time: this time on the actual temperature reached the set temperature of minus deviation of the temperature after the next time. Allow time after the end of the action.

Keep warm temperature：When the temperature reached the preset keep warm temperature the computer will automatically switch on the heater to activate the keep warm function.

Electric heat diagram color explanation

Green: Means the actual temperature is within the limit range.(injection movement is available)

Yellow: Heating condition.(injection is not available)

Red: Means the actual temperature has overtake the temperature range which is exceeding the upper limit.

※ **Note:** If the actual temperature than the original set of temperature alarm, the lower limit will be 'temperature deviations' message, but so will be able to reduce the heating next time.

When the temperature is damage the screen will display ”977” , ”988” , ”999”。

977 means the temperature board is not connected or damaged.

988 means the temperature wire or temperature induction is damaged.

999 means the temperature is exceeding the normal range limit or the temperature wire is damaged.

2.10.2 Temperature function(H-2)

Path – screen → **F8 temperature → F3 timing**

F3 timing

Heating on time : When you are using the heating on time function, please setup the heating time and select use, when it reach the heating time the computer will automatically activate the heater switch.

2.10.3 Temperature parameters(H-3)

Path – screen → **F8 temperature → F4 parameter**

F4 parameter

This photo including temperature setting and all the other parameters (detail information please referral to the Para chart)

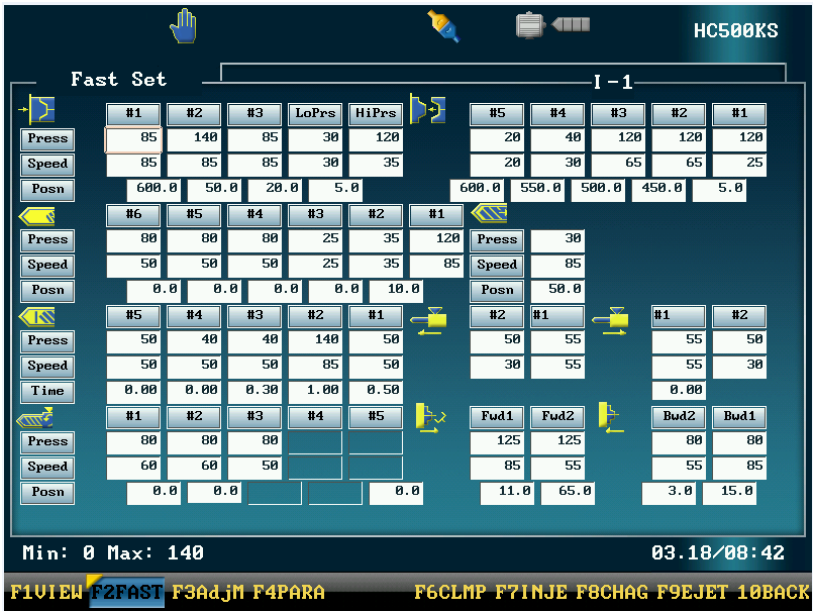
2.11 Fast set

Including F2 fast set, F3 mold adjustment and F4 parameters

2.11.1 Fast set(I-1)

Path – screen → **F9 fast →F2 fast**

F2 fast



This photo can be fast set close mold, open mold, eject mold, inject mold pressing, charge, suck back, and also temperature

2.11.2 Fast set mold adjustment settings(I-2)

Path– screen → **F9 fast →F3 adjustment**

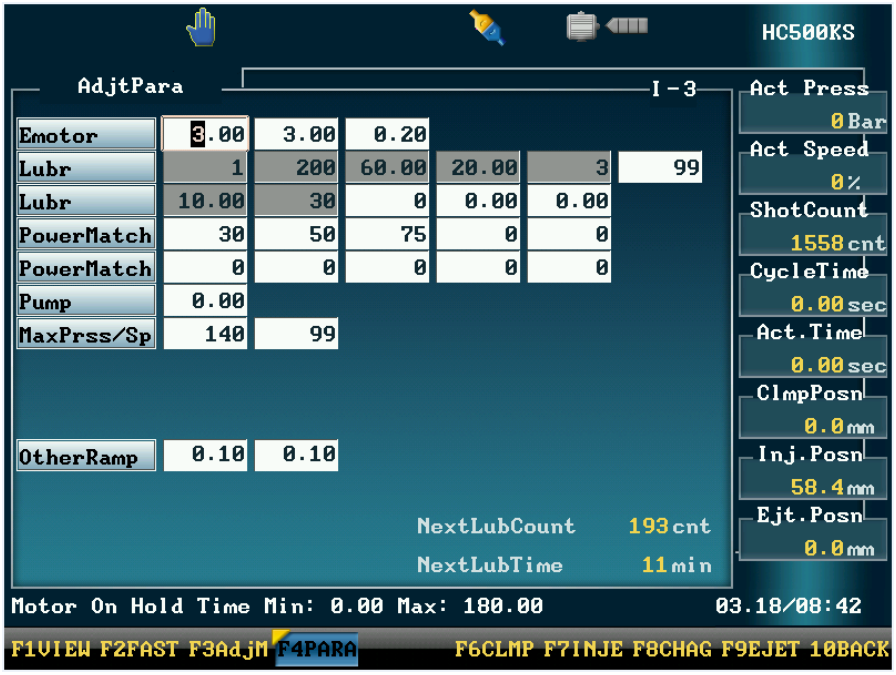
F3 adjustment

Mold adjustment setting：Mold forward and backward speed usage by using slow speed, once the mold plate start timing, then it will change into high speed. The computer will activate automatic timing, setting is not needed.

2.11.3 Fast set mold adjustment parameters settings(I-3)

Path – screen → **F9 fast →F4 parameter**

F4 parameter



This screen consists of all corresponding parameters of the mold adjustment. (Please refer to the parameters index for further information)

2.12 Monitor Settings

Including F2 alarm, F3 Mon1, F4 Mon2, F5 Mon3, F6 Profile, F7 counting and F8 parameters

2.12.1 Alarm display(J-1)

Path– **F10 next → F2 PM→ F2 alarm**

F2 alarm

Display Start No: The screen displays 8 error messages at a time. If you want to refer to the previous recorded errors you can enter here the error number for the first error to be displayed on the screen. But this system is only allowed to record 100 errors in maximum and the dates will be save when the electricity is OFF.

Total Error Count: The total number of errors is recorded.

Reset: Set this value to "1" if you want to reset the error log.

Code: The error code display is from 0 to 100

Alarm Explanation: Including brief Chinese explanation to assist you to find the error.

Str.Tim. (Start Time): The time when the error occurred

Reset Tim (Reset Time): The time when the error is eliminated.

2.12.2 Monitor 1Settings (J-2)

Path– **F10 next → F2 PM → F3 Mon 1**

F3 Mon1

The HMI and controller provide you with an automatic monitoring and alarm system. The system allows you to set a desired operating range with upper and lower limits (Delta Values) for each production parameter. Once the current parameter value is outside the pre-set range the machine will stop operation and the alarm will sound. For later analysis the monitoring system will record the time and the type of error that caused the alarm.

At the beginning of each operation, the automatic alarm is turned off until the machine has finished the pre-set number of production cycles in *Auto Operation* mode. After the number of pre-set production cycles the automatic alarm will be activated and the achieved parameter values of the last production cycle will be used as reference points for the upper and lower limits (Delta Values) of each production parameter. Should any of the current production parameters during the next production cycle and thereafter be outside the pre-set upper and lower limits (Delta Values) the alarm will sound and machine operation will stop for trouble shooting.

The activation of the automatic alarm function is delayed to allow for a stabilization of the production cycles. At the start of machine operation it is normal that the current production parameters vary considerably from one cycle to the next before they begin to stabilize. You should consider this when setting the number of production cycles before automatic alarm activation to allow for a smooth operation without interruptions.

You can adjust the automatic alarm starting in the parameters.

To set the upper and lower limits for current production parameters you can use % values and/or absolute values. These Delta Values are then used in connection with the established Reference Value to determine the upper and lower limits. In case you use a combination of % and absolute values the upper/lower limits will be calculated according to the following formula:

Upper Limit	Explanation
RV+ (RV*X/100) + Y	RV=Reference Value
Lower Limit	X=Delta percentage (e.g.10 for 10%)
RV- (RV*X/100) -Y	Y= Delta Absolute Upper Limit

Since the reference values are not fixed and vary from one machine operation cycle to the next the values are lost once the machine is turned off. They will be re-established at the beginning of the next operation cycle by using the current parameter values to determine the new reference points for the upper and lower limits (Delta Values).

If at some point after establishing the reference values you want to replace them with the currently achieved parameter values (e.g. because of improved production results) you can set the ***Auto Alarm*** mode at the top of the screen to "2". The controller will then use the parameter values of the last production cycle as the new reference values.

When the ***Auto Alarm*** system display use: auto alarm is open
Display not use: auto alarm is close

Explanation of each monitoring value:

Cls Mold (Close Mold): Total mold closing time.

Mold Prot (Mold Protection): Total time of low speed/low pressure mold closing phase (for mold protection).

Cls H.Prs (Closing High Pressure): Total high pressure mold closing time.

Mold Opn (Mold Open): Total mold opening time.

Eject: Total ejection time.

Cycle: Total production cycle time in *Auto Mode*.

Mold Ope End (Mold Open End): End position after mold opening.

Inj Time (Injection Time): Total injection time.

V->P SW: The position achieved at time of transition from injection to hold pressure.

V->P SW: The injection time elapsed at time of transition from injection to hold pressure.

V->P SW: The injection pressure achieved at time of transition from injection to hold pressure.

Cushion: End position reached by screw at the end of hold pressure.

Charge (Plasticizing): Total charge (plasticizing) time.

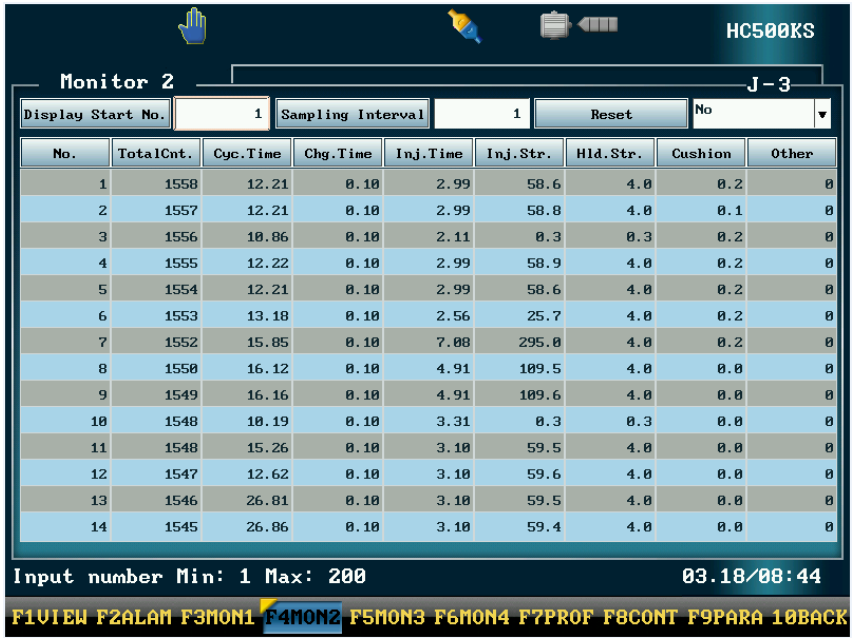
Inj Start (Injection Start): The position reached at start of injection.

]

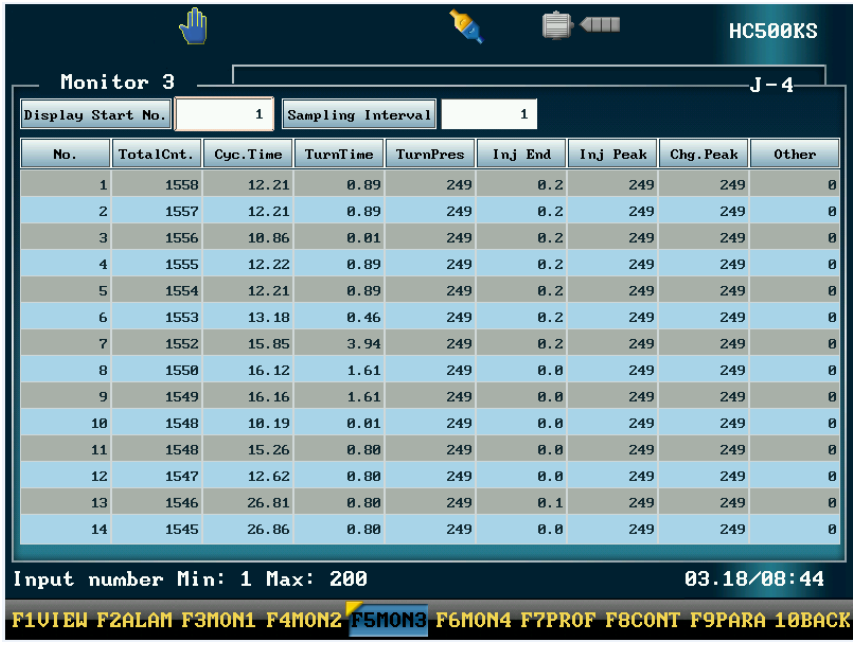
2.12.3 Monitoring Settings 2/3 (Production Parameter Comparison) (J-3) (J-4)

Path– F10 **next → F2 PM → F4 Mon 2 / F5 Mon 3**

F4 Mon 2



F5 Mon 3



This monitoring screen allows you to compare the most important production cycle parameters. Use this screen to compare production parameter deviation during machine operation. The parameter comparison of different production cycles allows you to adjust the relevant machine settings to improve overall product quality.

The controller automatically saves the parameters of the last 100 production cycles, displaying 10 records at a time (No. 1 being the first cycle recorded).

Display Start No: Enter the number of the record you want to be displayed first.

Sampling Interval (Cyc): Enter the sampling interval you would like to use (e. g. "3" to display every third record).

Reset (0/1): If you want to reset this monitor screen at any time enter here the value "1" and press enter.

Sht. Cnt (Shot Count): The record number of the corresponding parameter set.

Cycle (Cycle Time): Total duration of this production cycle.

Inj.Tim. (Injection Time): Total duration of injection.

Chg.Tim. (Charge Time): Total charging time.

Inj Start (Injection Start): The position reached at start of injection.

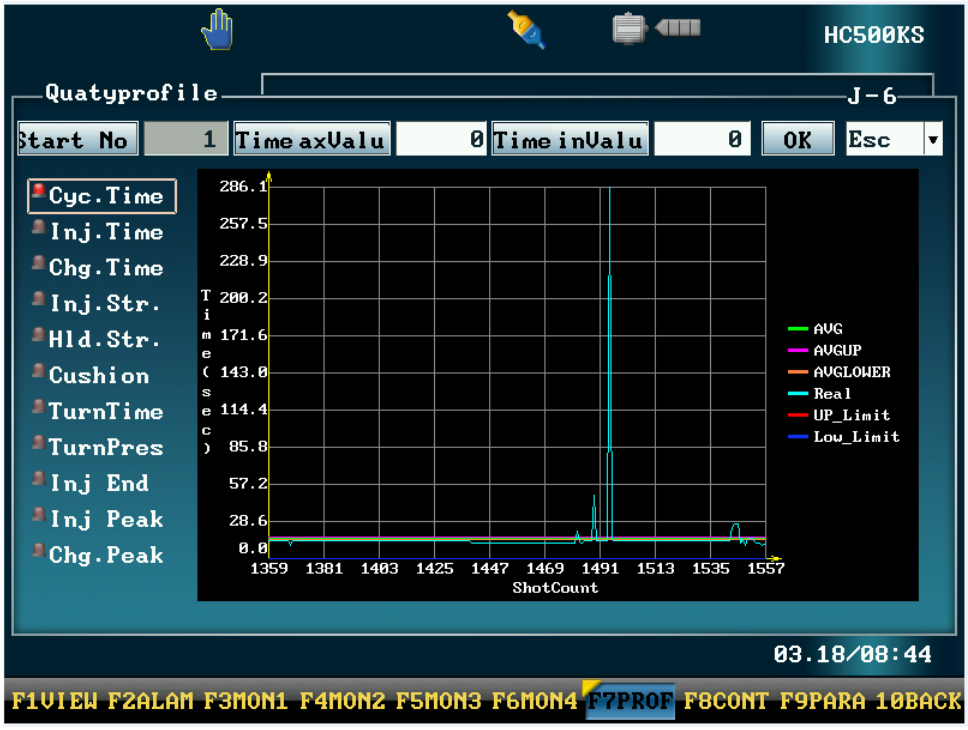
Hld.Str. (Hold Start): The position reached at beginning of hold pressure.

Cushion: End position reached by screw at the end of hold pressure.

2.12.4 Quality Profile setting(J-6)

Path– F10 **next → F2 PM → F7 Profile**

F7 Profile



2.12.5 Monitoring counting settings(J-7)

Path– F10 **next → F2 PM → F8 counting**

F8 counting

Total amount of mold open zero-mode: If you want to enter a zero mode after the opening mold, please select “use”, then press 輸入 ENTER key to clear and recount the total.

Total amount of target production: Setup the production amount you required , when the opening mold amount preset value has reached, the computer will alarmed opening mold to stop the machines from operating unless the opening mold is in zero mode, if not the machine is not able to operate.

T**otal amount of current production:** Means the actual amount of current production.

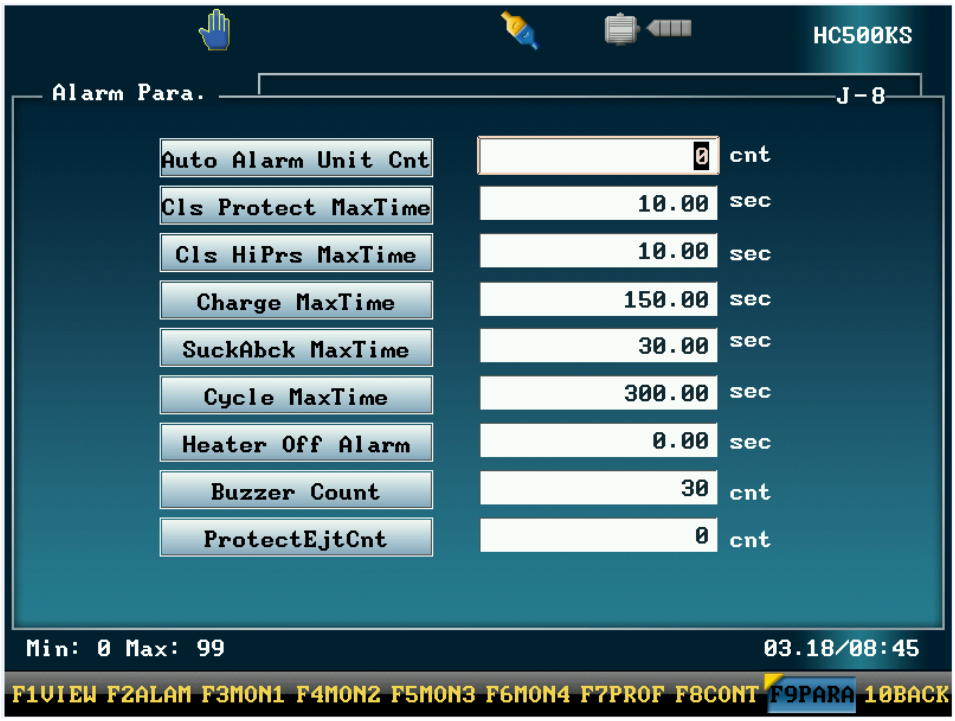
Total amount of target packaging: Setup the package you required if the preset package amount had reached the alarm will siren and will be shown on the display screen to inform the customer , however the machine will not stop while continue the next movement.

Total amount of current packaging: Means the current packaging amount, but if the present value and the current value is the same the current value will be cleared to 0.

2.12.6 Monitor parameters settings(J-8)

Path – **F10 next → F2 PM → F9 parameter**

F9 parameter



The value could be set according to the actual production demand.

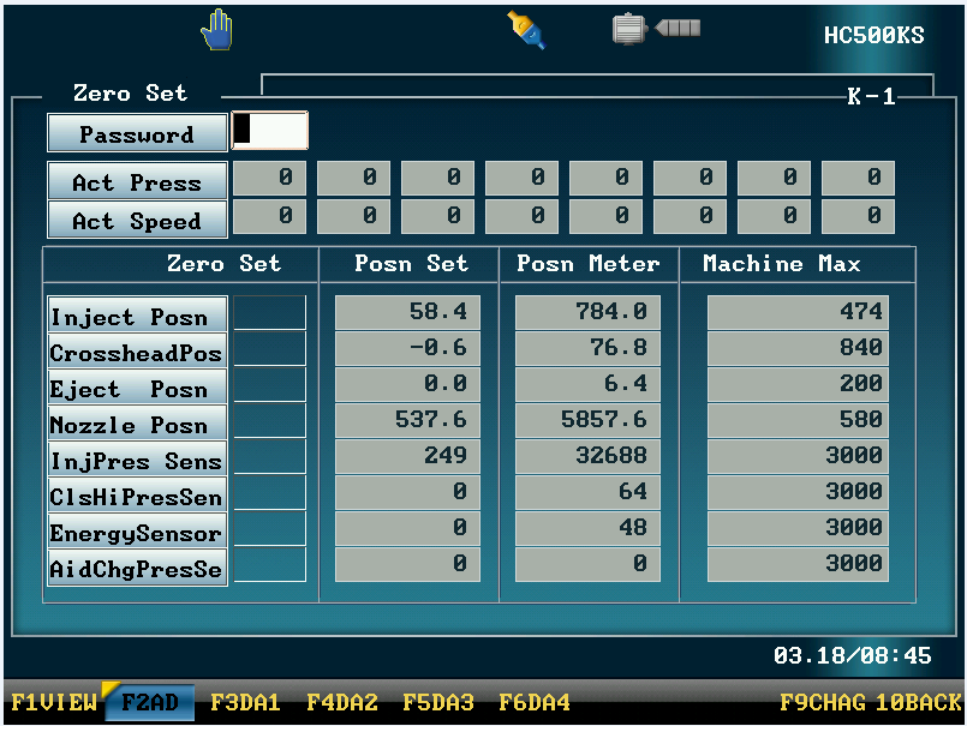
2.13 Monitor adjustment

Including F2 AD、 F3 DA1、 F4 DA2、 F5 DA3 and F6 DA4

2.13.1 Transducer Zero Point Reset(K-1)

Path– **F10 next → F3 REVS→F2AD**

F2 AD



The replacement of foot position or modify some of the mechanical parts, so re-location of the zero correction is needed (in manual mode only):

1. Please insert the password
2. Please switch the part to zero according to the requirement before operating.
3. Please set the value to 1 then press enter key to complete the zero mode movement.

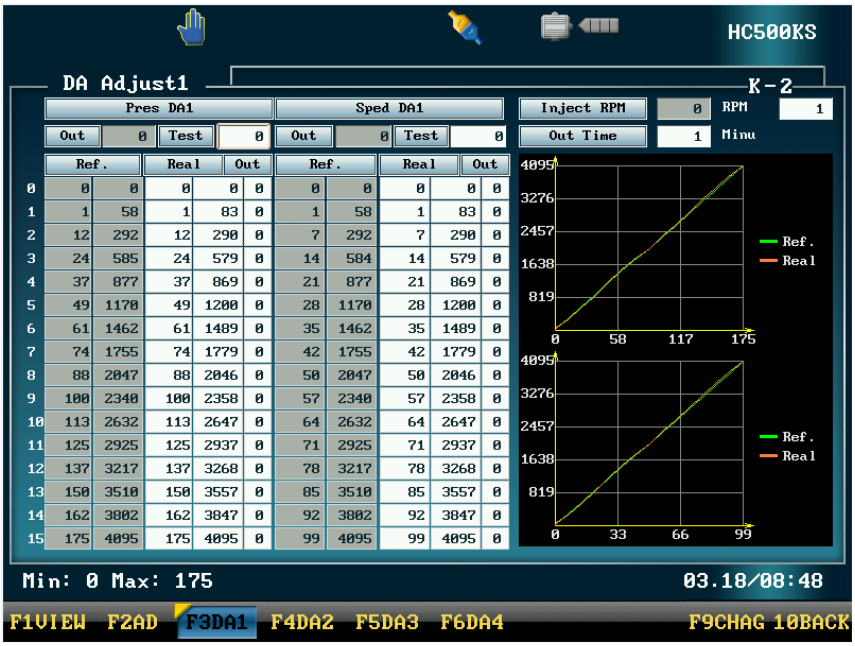
2.13.2 DA adjustment settings(K-2)

You can use Step and output to adjust DA at the same time in order to adjust DA output like. DA not just provide you with straight line and also provide speed adjust, slide or working by manually

There's two ways for DA adjustment please see as the photo:

Path– **F10 next → F3 REVS → F3 DA1**

F3 DA1



DA2，DA3，DA4 and DA1 picture and function are similar

Output force: DA correction during the test output, the corresponding channel's output continued to the timing, when the timing has reach the limit , the output will automatically be cut off.

Test：During testing, insert the pressure and flowing preset value as required.

Output：The corresponding value of the host computer

Reference value：Preset value of the DA curve by the system

Actual value：Value after adjustment according to the actual demand of the DA curve.

Example of the operation:（the first group of proportional valve）：

Select the node point from 0 to 140 for the testing such as 60. Then, enter 60 into the testing point, the system will immediately respond to the feedback output value of 60. Then, by observing the machine pressure gauge of their own systems or external pressure test tools, the real pressure is assumed to be 58. In the corresponding node, change 60 to 58! If the actual pressure is 58.5, while at the corresponding node, 60 will be changed to 58 or 59, then adjust the figures for the corresponding binary output value to achieve the adjustment.

If you need other options of adjustment please contact Techmation for further requirements!

2.14 I/O Channel Diagnostics

Include F2 PB1、F3PB2、F4 PC1、F5PC2、F6 A IO、F7 PA and F8 DIAG

2.14.1 Input Channel Diagnostics (PB) (L-1) (L-2)

Path – F10 **next → F4 I/O → F2 PB1 / F3 PB2**

F2 PB1

F3 PB2

PB signals is accroding to the practical situation

You can use this display screen to ensure the connection between the controller and the corresponding input signal, if you reach INPUT sign during operating, you can ensure the connection between the controller and the signal through this display screen.

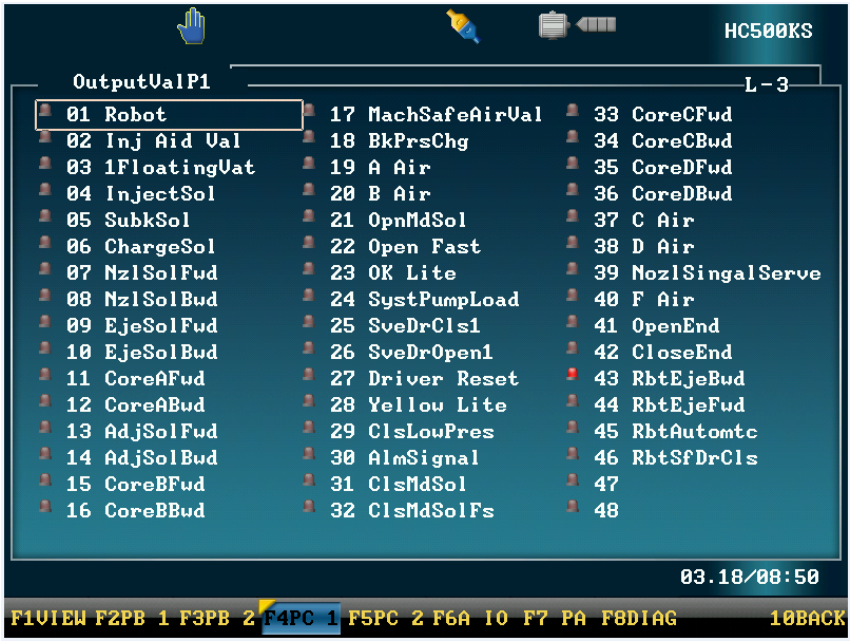
If the PB signals display red it means normal while if the signal is gray it means the signal is not received yet.

If the INPUT signal of the I/O board is malfunction, use PB REASSIGN to solve PCB board malfunction problems. Operating procedure please refer to *I/O Channel Index* section for a list and description of all I/O channels are available.

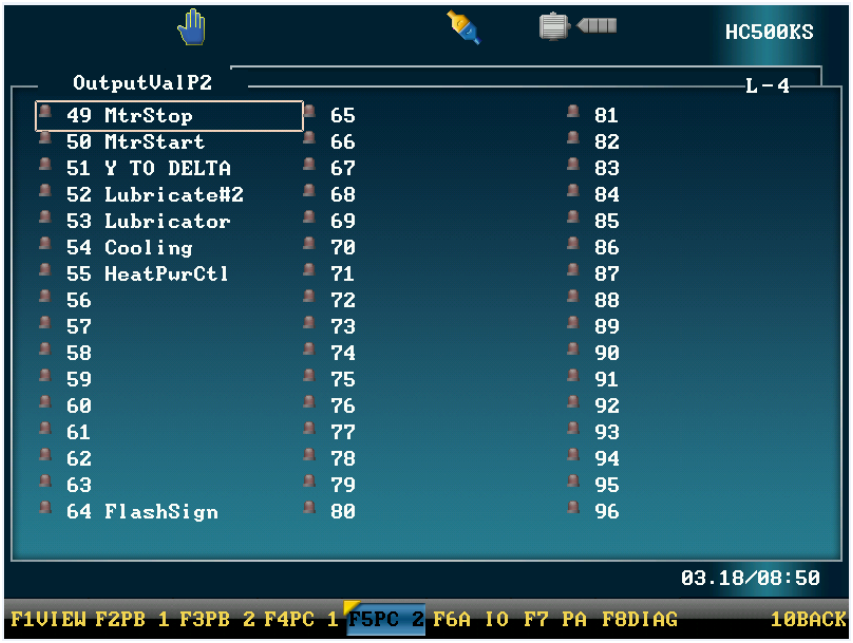
2.14.2 Output Channel Diagnostics (PC) (L-3) (L-4)

Path – **F10 next → F4 I/O → F4 PC1 / F5 PC2**

F4 PC1



F5 PC2



PC signals is accroding to the practical situation

When there is an output during the output valve, the signal light will be gray while when there is no output the signal light will be in red.

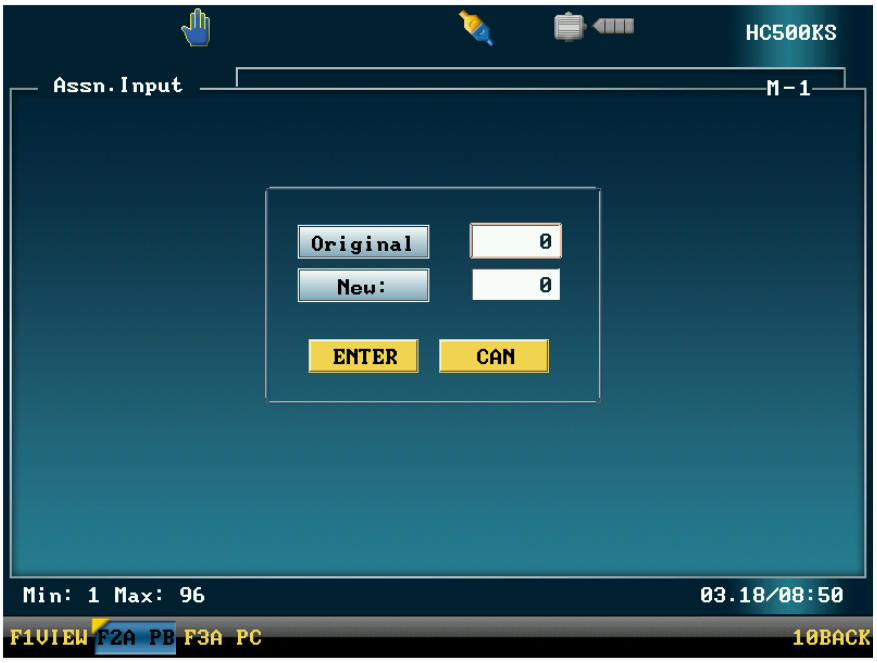
Under the manual mode motor close condition , press "ENTER" key and the signal light will turn gray, at this moment there will be an output force, press "CAN" cancel key ，the signal light will turn red to cancel the output force.

2.14.3 I/O Channel Reassignment(M-1) (M-2)

Setting input PB

Path – **F10 next → F4 I/O→F6 A IO→ F2 A PB**

F2 A PB



If the PCB board is malfunctioning, you can transfer the malfunction point to the unused input point. Please consult the producer for the password.

Setting output PC

Path – **F10 next → F4 I/O → F6 A IO → F3 A PC**

F3 A PC

If the PCB board is malfunctioning, you can transfer the malfunction point to the unused output point. Please consult the producer for the password.

2.14.4 Control Panel operating screen (PA) (L-5)

Path– **F10 next → F4 I/O → F7 Test PA**

F7 Test PA

This screen is used to testify all the key on the control panel, when you press on any key on the panel the key on the screen will correspondingly turn yellow.

The graph below is the changes after  is selected：

If the screen display has changes without accordance to the key you press it means that the panel is malfunctioning, at this moment please check the panel or change a control panel.

Press “ 

” cancel key twice to exit from this screen.

2.14.5 Machine diagnostics screen(L-6)

Path – F10 **next → F4 I/O → F8 diagnose**

F8 diagnose

Attention * this page data is for engineer checking system usage only, please do not perform any correction.

2.15 Mold Set Database

Include： F2 Save, F3 Read, F4 Copy , F5 Delete, F6 Machine, F7 Record

NO ：Mold database save ‘s number

MoldName：mold’s name, the max length are 8 words.

SaveDate：Month/Date/Year

Material ：Material data, the max length are 5 words.

Color：Color’s data, the max length are 5 words.

2.15.1 Mold Save(N-1)

Path – **F10 next → F5 Mold → F2 save**

F2 save

Object：You can use  for target saving in panel or memory card.

Save mode：You can use  key to choose the sequencing mode according to the date and name.

Change Pages: You may request for the ▼ next or ▲ previous page data by using  key. Press  for confirmation of the page switching.

Save mode：Use  key to replace or save.

Save As：Save and copy the data and name from the mold platen source to another inexistence mold platen. You need to choose the number separately and setup “ mold platen name”+”material”+”color” for saving. The saving date will appear automatically.

Replace：Replace the mold platen data after correction and save again.

Confirmation：Use  to choose delete or confirm.

cancel：Delete the mold platen data.

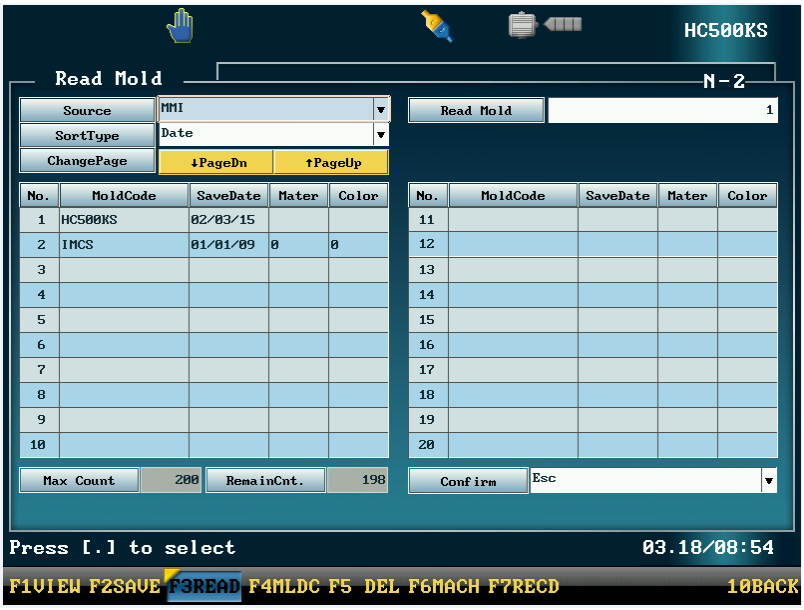
confirm ：Save the mold platen data.

Maximum storage：The maximum amount of mold platen data saving.
Remain storage: Remain space to save the mold platen data.

2.15.2 Mold Read(N-2)

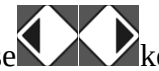
Path– **F10 next → F5 Mold → F3 read**

F3 read



Source ：Use  key to read the mold platen data from the panel of SD memory card.

Sort Type：In the current mold platen list, use  key to choose the date and mold platen name in sequence.

Change Page：Use  key to choose ▼**next** ▲**previous**, press  key after selection for confirmation.

Mold read ：Insert the serial number of the mold platen you required after the setup of the mold platen serial number.

Confirm：Use  to choose delete or confirm.

delete：Delete the mold platen data

confirm ：Save the mold platen data

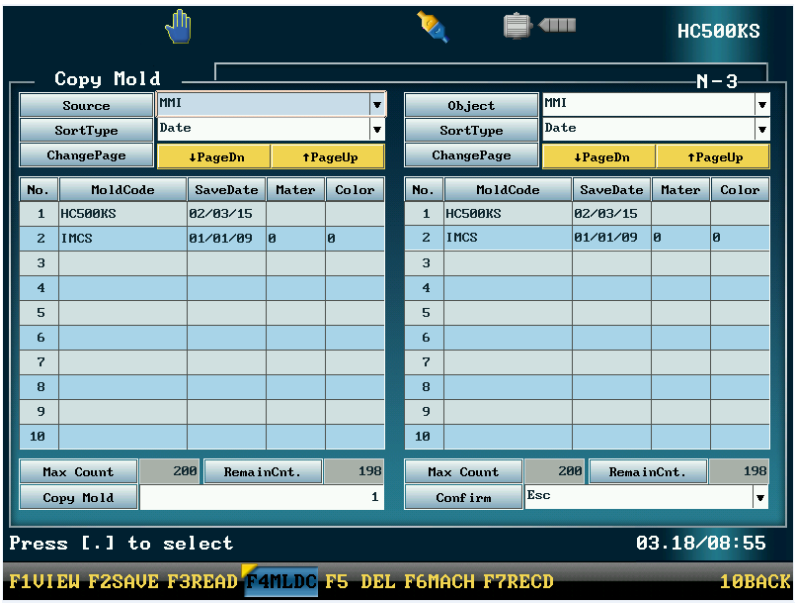
Maximum storage：The maximum amount of mold platen data that can be saved.

Remain storage: Remaining space to save the mold platen data.

2.15.3 Mold Copy(N-3)

Path– **F10 next → F5 Mold → F4 copy**

F4 copy



You can copy the data from the SD card to the panel or from the panel to the SD card by using this function.

Source ：Use  key to read the mold platen data from the panel of SD memory card.

Sort Type：In the current mold platen list, use  key to choose the date and mold platen name in sequence.

Change Page：Use  key to choose ▼**next** ▲**previous**, press  key after selection for confirmation.

Object ：Use  to save the target either in the panel or the SD memory card.

Mold copy：Mold platen serial number from the setup source.

confirmation：Use  to choose confirm or cancel.

2.15.4 Mold Delete(N-4)

Path– **F10 next → F5 Mold → F5 Delete**

F5 Delete

By using this screen to delete the mold platen data

Source ：Use  key to read the mold platen data from the panel of SD memory card.

Sort Type：In the current mold platen list, use  key to choose the date and mold platen name in sequence.

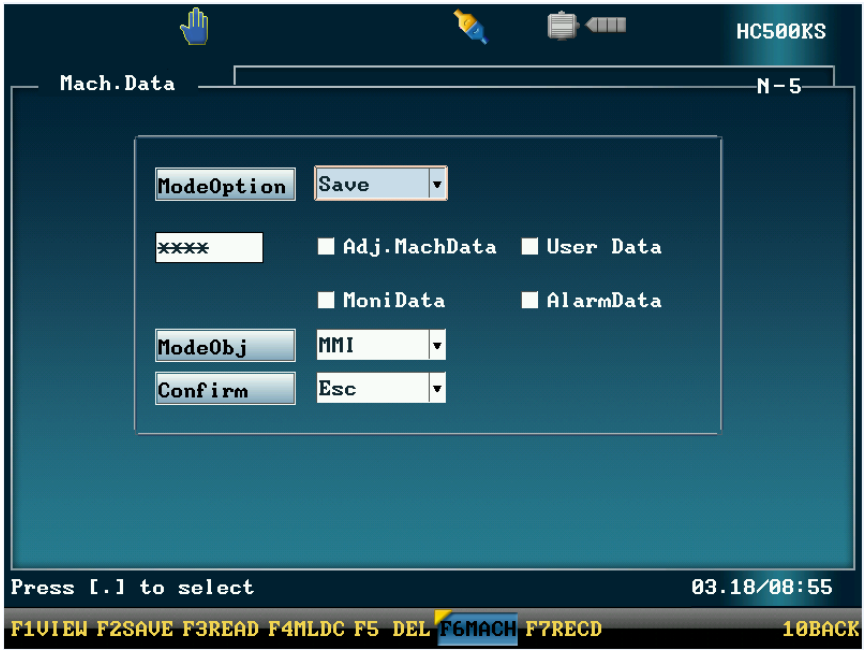
Change Page：Use  key to choose **▼next ▲previous**, press  key after selection for confirmation.

Mold delete ：Insert the mold platen serial number which you want to delete.

2.15.5 Machine Set(N-5)

Path– **F10 next → F5 Mold → F6 machine**

F6 machine



This screen allows machine parameters/version data to save in MMC card or external data input.

2.15.6 Modify Record(N-6)

Path– **F10 next → F5 Mold → F7 records**

F7 records

This screen is the reference page of the parameters data correction records.

2.16 Other special parameters settings(O-1)

Path –**F10 next → F6 others**

F6 others

This screen consists of all corresponding parameters of the other settings. (Please refer to the parameters index for further information)

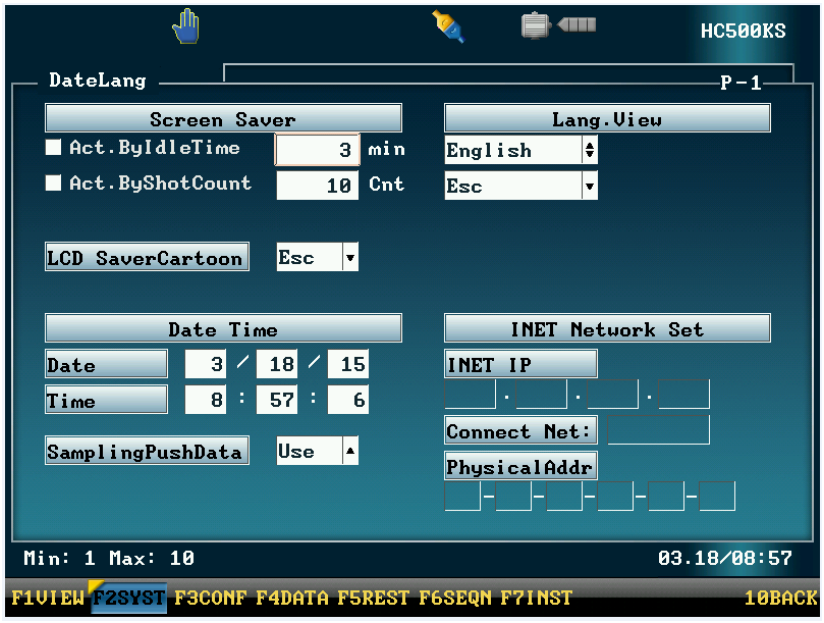
2.17 System Settings

Including F2system, F3 control, F4 data, F5 reset, F6 privilege and F7 install

2.17.1 System Parameter Settings(P-1)

Path – **F10 next → F7 system → F2 system**

F2 system



Monitor protection installment: Protect LCD screen and increase its exercise life span according to your data set.

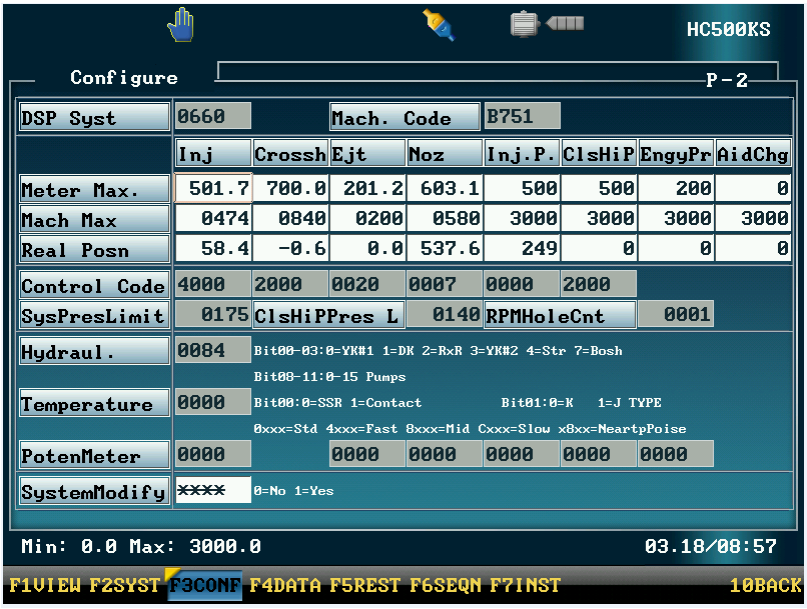
Language display：Basically is Chinese or English screen, include optional choice of other languages.

Time and date：Time and date setup of the system.

2.17.2 System Control screen(P-2)

Path– **F10 next → F7 system → F3 control**

F3 control



You can only adjust the electron ruler stroke, machine stroke and current position system data in this screen.

2.17.3 Date Base(P-3)

Path – **F10 next → F7 system → F4 data**

F4 data

This is specializing for software engineer for data correction, please do not use.

2.17.4 System Reset(P-4)

Path – **F10 next → F7 system → F5 Rest**

F5 Rest

You can either reset the panel or the computer host.

Regarding to the abnormal movement of the controller, you can use this screen to reset the system, by pressing confirm(Y), the system will reset. In order to prevent data lost, insert the password before entering the system reset screen, please consult the supplier

Warning：System reset is the last option, after the system reset all the mold data and parameters data will disappear. After your system reset please switch off the power supply and restart the computer.

2.17.5 Privilege(P-4)

Path – F10 Next → F7 system → F6 SENQ

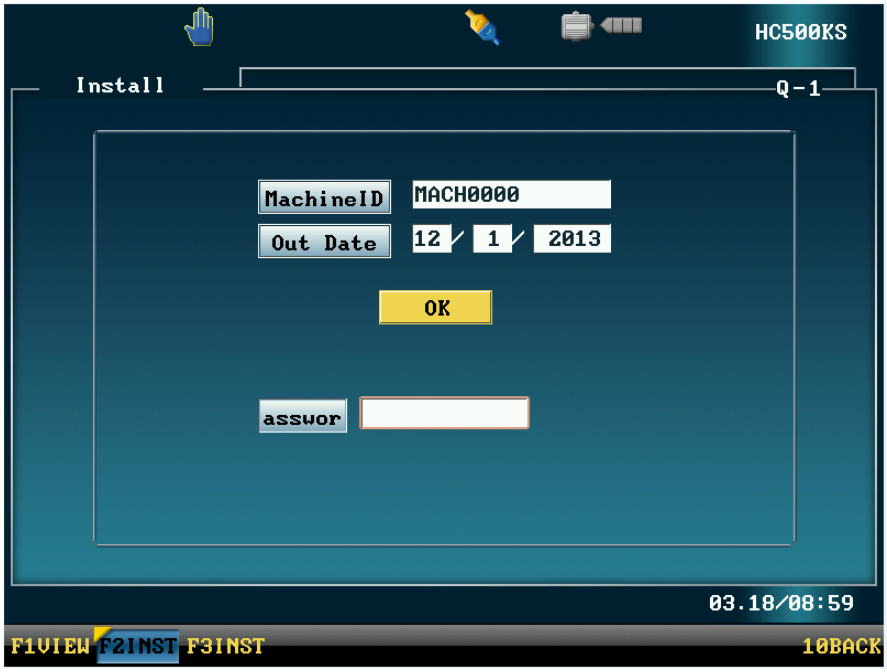
F6 SENQ

Customer can use this to change the original preset password.

2.17.6 Install screen(Q-1) (Q-2)

Path– **F10 next → F7 system → F7 install→ F2 install/ F3 install**

F2 install



Insert the value in the **Machine ID** column and the **Out Date** column then work out the F3 install screen machine turn on password.

F3 install

Insert the password and press enter, the contents below will be shown:

Machine consignment date: The date when the machine is sent to the customers, which is also the date when the down time function activated.

Installment：Represent the total installment of the customers' payment, the current installment represent the total installment of the payment prepaid.

Parking day of single installment：Represent the interval day of the payment of every installment.

Parking date of next installment：When the parking date is activation, please insert again the year/month/day as insert once is ineffective.

Parking warning day number：The advance day number before the parking date expired

Next warning date：While using the parking timing function, the warning time before the parking timing.

Running timing：This is the accumulated running time after the activating of the motor; it is only available for display.

Running condition：When the setup is "1" the function above will start operating,"0"means not using.

Interval minute：When the alarm is activating, there will be an alarm message pop out during every internal period.

Important items:

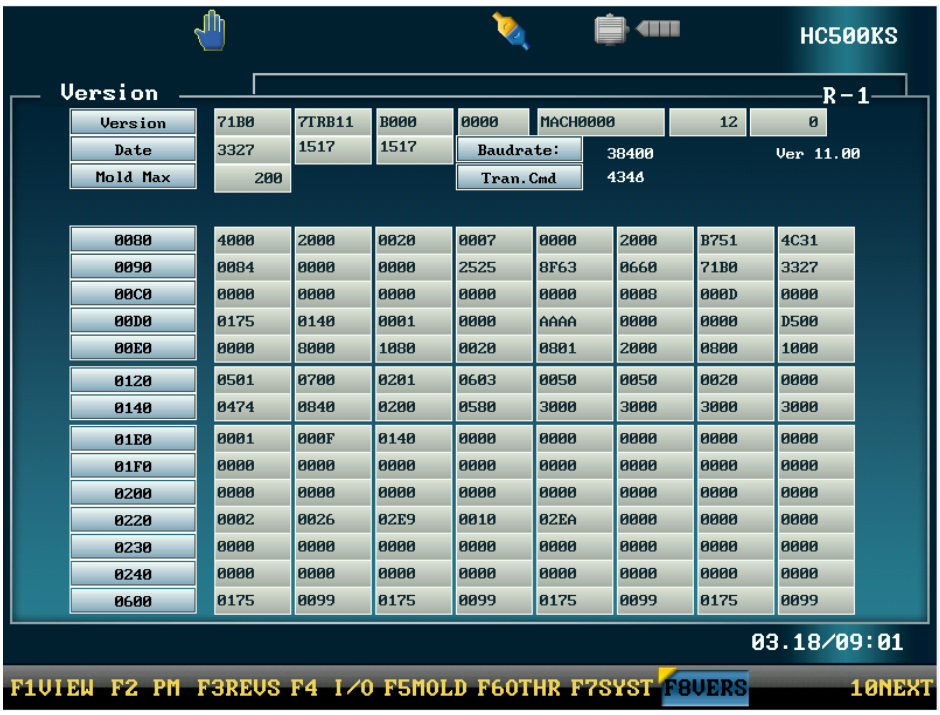
- Please insert once again if there is a changes of month/day during the down time function year/month/day.
- When the down time function is operating, the current date and time can only enter the correction with the turn on password.
- Customer machine serial number and turn on password, detail records are needed for the panel control board serial number, once the turn on password is set our company is unable to disentangle from the screen.

- When the down time function is able to change with the control panel, the maintenance board of the machine under the down time function then is able to insert, your company should report the serial number record of the down time function usage to our company in order to prevent customers sending directly for maintenance or our company provide maintenance support.(turn on password is not needed)

If your company is willing to unlock the password function the only way is to replace the hardware, spare parts should be charge for your company.

2.18 Version(R-1)

Path– **F10 next → F8 version**



Maintenance personnel could take more notice against the system data and version by this record in order to facile the usage communication in the future.

3 I/O Channel Index

Please use this list to enter the label and description of the relevant I/O channels as supplied by the machine manufacturer. If necessary this list allows you to track any changes of I/O channel assignments.

3.1 Input Channels

Channel	Label	Description
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
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48		

3.2 Output Channels

Channel	Label	Description
0		
1		
2		
3		
4		
5		
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11		
12		
13		
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15		
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39		
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46		
47		
48		

4 Parameter Index

4.1 Open mold parameters

No.	**other Ramp**
1 stage	**Close mold at the start Ramp maximum counting** –The initial pressure/ speed increase time is the maximum value.
2 stage	
3 stage	
Low pressure	**Close End Pres Ramp-**Pressure change time limit for transition in the close end
High pressure	**Close End Flow Ramp-**Speed change time limit for transition in the close end

No.	**Pressure Ramp**
1 stage	**Close mold 1 stage pressure Ramp** –The increase slope of Close Mold 1 stage pressure buildup time.
2 stage	**Close mold 2 stage pressure Ramp** –The increase slope of Close Mold 2 stage pressure buildup time.
3 stage	**Close mold 3 stage pressure Ramp** –The increase slope of Close Mold 3 stage pressure buildup time.
Low pressure	**Close mold 4 stage pressure Ramp** –The increase slope of Close Mold 4 stage pressure buildup time.
High pressure	**Close mold 5 stage pressure Ramp** –The increase slope of Close Mold 5 stage pressure buildup time.

No.	**Close mold- Flow Ramp**
1 stage	**Close mold 1 stage flowing Ramp** –The increase slope of Close Mold 1 stage speed buildup time.
2 stage	**Close mold 2 stage flowing Ramp** –The increase slope of Close Mold 2 stage speed buildup time.
3 stage	**Close mold 3 stage flowing Ramp** –The increase slope of Close Mold 3 stage speed buildup time.
Low pressure	**Close mold 4 stage flowing Ramp** –The increase slope of Close Mold 4 stage speed buildup time.
High pressure	**Close mold 5 stage flowing Ramp** –The increase slope of Close Mold 5 stage speed buildup time.

No.	**Other Ramp**
1 stage	
2 stage	
3 stage	
4 stage	**Mold Open End Flow Ramp-** Pressure change time limit for transition in the close end
5 stage	**Mold Open End Pres Ramp-** Speed change time limit for transition in the close end

No.	**Open mold- Pressure Ramp**
1 stage	**Open mold 1 stage pressure Ramp** –The increase slope of Open Mold 1 stage pressure buildup time.
2 stage	**Open mold 2 stage pressure Ramp** –The increase slope of Open Mold 2 stage pressure buildup time.
3 stage	**Open mold 3 stage pressure Ramp** –The increase slope of Open Mold 3 stage pressure buildup time.
4 stage	**Open mold 4 stage pressure Ramp** –The increase slope of Open Mold 4 stage pressure buildup

	time.
5 stage	**Open mold 5 stage pressure Ramp** –The increase slope of Open Mold 5 stage pressure buildup time.

No.	**Open Mold- Flow Ramp**
1 stage	**Open mold 1 stage flowing Ramp** –The increase slope of Open Mold 1 stage speed buildup time.
2 stage	**Open mold 2 stage flowing Ramp** –The increase slope of Open Mold 2 stage speed buildup time.
3 stage	**Open mold 3 stage flowing Ramp** –The increase slope of Open Mold 3 stage speed buildup time.
4 stage	**Open mold 4 stage flowing Ramp** –The increase slope of Open Mold 4 stage speed buildup time.
5 stage	**Open mold 5 stage flowing Ramp** –The increase slope of Open Mold 5 stage speed buildup time.

No.	**Close mold-pressure/flow**
0	**Close mold setup pressure** – Close mold pressure during mold height adjustment
1	**Close mold setup flow** – Close mold speed during mold height adjustment

No.	**Movement time 1**
0	**Close mold deviation valve open delayed time** –Time delay of the opening of the close mold deviation valve.
1	**Close mold deviation valve open delayed time** –Time delay to stop the close mold deviation valve.
2	**Close mold low pressure forward time delay** –Close mold low pressure pressure, speed delay sent.
3	**Close mold low pressure valve delayed time** –Close mold low pressure valve delay sent.
4	**Auto mold adjustment low pressure time -** Auto mold adjustment timing at 1 stage.

No.	**Movement time 2**
0	**Close mold high pressure forward time delay** – Close mold high pressure, speed delay sent.
1	**Close mold high pressure maintains time** –After close mold, maintain valve, pressure speed, delay stop.
2	**Close mold high pressure valve delayed time** –Close mold high pressure valve delay sent.
3	**Close mold starting scale valve delay –** Close mold start， the output time of scale valve delay
4	**Delay the stop time of the close mold done valve**– After the close mold, close mold valve stop delayed.

No.	**Movement time 3**
0	**Close mold done delay timing** –After close mold, pressure speed stop delayed.

No.	**Open mold-pressure/flow**
0	**Open mold setup pressure** –Open mold pressure during mold height adjustment
1	**Open mold setup flow** – Open mold speed during mold height adjustment
2	**Open end before Pres**
3	**Open end before Flow**

No.	**Open-Movement Time 1**
0	**Open mold 1 delay sent slower then low pressure valve** –Open mold 1 delay sent slower then PC22 valve

1	**Open mold 2 delay sent slower then low pressure valve** –Open mold 2 delay sent slower then PC22 valve
2	**Open End Valve Dly –** Delay time for closing valve after completion of mold opening
3	**Open End Delay -** Delay time for resetting hydraulic speed/pressure at the end of mold opening
4	**Open Drain Time –** Pressure release time before mold opening

No.	**Open-Movement Time 2**
0	**Open mold starting scale valve delay** – Open mold start， the output time of scale valve delay

No.	**Open-Movement position**
0	**Open mold position effective zon**–Open mold complete position positive and negative effective zon.

4.2 Injection Parameters

No.	**Injection-Pressure Ramp**
1 stage	**Injection 1 pressure Ramp** –The increase slope of injection 1 pressure buildup time.
2 stage	**Injection 2 pressure Ramp** –The increase slope of injection 2 pressure buildup time.
3 stage	**Injection 3 pressure Ramp** –The increase slope of injection 3 pressure buildup time.
4 stage	**Injection 4 pressure Ramp** –The increase slope of injection 4 pressure buildup time.
5 stage	**Injection 5 pressure Ramp** –The increase slope of injection 5 pressure buildup time.
6 stage	**Injection 6 pressure Ramp** –The increase slope of injection 6 pressure buildup time.

No.	**Injection-Flow Ramp**
1 stage	**Injection 1 flow Ramp** –The increase slope of injection 1 speed buildup time.
2 stage	**Injection 2 flow Ramp** –The increase slope of injection 2 speed buildup time.
3 stage	**Injection 3 flow Ramp** –The increase slope of injection 3 speed buildup time.
4 stage	**Injection 4 flow Ramp** –The increase slope of injection 4 speed buildup time.
5 stage	**Injection 5 flow Ramp** –The increase slope of injection 5 speed buildup time.
6 stage	**Injection 6 flow Ramp** –The increase slope of injection 6 speed buildup time.

No.	**Injection-Pressure**
1 stage	
2 stage	
3 stage	**Inject Energy Flow**–Speed of inject energy movement
4 stage	**Inject Energy Pres**–Pressure of inject energy movement
5 stage	**Injection mold setup flow**– Speed during mold adjustment mold height adjustment
6 stage	**Injection mold setup pressure-** Pressure during mold adjustment mold height adjustment

No.	**Injection- Movement time**
1 stage	
2 stage	
3 stage	**Injection scale valve delay** – Injection start， the output time of scale valve delay
4 stage	**Injection pressure increase timing delayed**
5 stage	**Injection done valve stop delayed timing** –Injection valve stop delayed after injection done
6 stage	**Injection timing delayed** – Delay after the nozzle input, before the injection

No.	**Injection- Other Ramp**
1 stage	
2 stage	
3 stage	
4 stage	

5 stage	**Inject end speed Ramp Down** – The slope of injection end speed scale down.
6 stage	**Inject end press Ramp Down**– The slope of injection end press scale down.

No.	**Hold pressure – Pressure Ramp**
1 stage	**Hold pressure 1 pressure Ramp** –The increase slope of hold pressure1 pressure buildup time.
2 stage	**Hold pressure 2 pressure Ramp** –The increase slope of hold pressure2 pressure buildup time.
3 stage	**Hold pressure 3 pressure Ramp** –The increase slope of hold pressure3 pressure buildup time.
4 stage	**Hold pressure 4 pressure Ramp** –The increase slope of hold pressure4 pressure buildup time.
5 stage	**Hold pressure 5 pressure Ramp** –The increase slope of hold pressure5 pressure buildup time.

No.	**Hold pressure-Flow Ramp**
1 stage	**Hold pressure 1 flow Ramp** –The increase slope of hold pressure 1 speed buildup time.
2 stage	**Hold pressure 2 flow Ramp** –The increase slope of hold pressure 2 speed buildup time.
3 stage	**Hold pressure 3 flow Ramp** –The increase slope of hold pressure 3 speed buildup time.
4 stage	**Hold pressure 4 flow Ramp** –The increase slope of hold pressure 4 speed buildup time.
5 stage	**Hold pressure 5 flow Ramp** –The increase slope of hold pressure 5 speed buildup time.

4.3 Charge parameters

No.	**Charge-Pressure Ramp**
1stage	**Charge 1 stage pressure Ramp** –The increase slope of charge 1 pressure buildup time.
2stage	**Charge 2 stage pressure Ramp** –The increase slope of charge 2 pressure buildup time
3stage	**Charge 3 stage pressure Ramp** –The increase slope of charge 3 pressure buildup time
4stage	**Charge 4 stage pressure Ramp** –The increase slope of charge 4 pressure buildup time
5stage	**Charge 5 stage pressure Ramp** –The increase slope of charge 5 pressure buildup time
Suckback	**Suck back pressure Ramp** –The increase slope of suck back buildup time

No.	**Charge-Flow Ramp**
1stage	**Charge 1 stage flow Ramp** – The increase slope of charge 1 speed buildup time.
2stage	**Charge 2 stage flow Ramp** – The increase slope of charge 2 speed buildup time.
3stage	**Charge 3 stage flow Ramp** – The increase slope of charge 3 speed buildup time.
4stage	**Charge 4 stage flow Ramp** – The increase slope of charge 4 speed buildup time.
5stage	**Charge 5 stage flow Ramp** – The increase slope of charge 5 speed buildup time.
Suckback	**Suck back flow Ramp** –The increase slope of suck back buildup time.

No.	**Charge-pressure/flow**
1stage	**Charge mold setup pressure** – Charge pressure during mold height adjustment
2stage	**Charge mold setup flow** –Charge speed during mold height adjustment

No.	**Charge –Movement time**
1stage	**Charge done valve stop delayed timing** – Charge done, charge valve stop delayed
2stage	**Charge Starting scale valve Dly-** Charge open scale valve, delay time for exporting scale valve
3stage	**Suck back done valve stop delayed timing- Suck back done, suck back stop delayed**
4stage	**Suck Starting scale valve Dly-** Suckback open scale valve, delay time for exporting scale valve

No.	**Charge –Other Ramp**
1stage	**Charge end speed Ramp Down** – The slope of injection end speed scale down.

2stage	**Charge end press Ramp Down**– The slope of injection end press scale down.
3stage	**Suckback end speed Ramp Down** – The slope of injection end speed scale down.
4stage	**Suckback end press Ramp Down**– The slope of injection end press scale down.

4.4 Ejector parameters

No.	**Ejector- Pressure Ramp**
1 stage	**Ejector forward 1 stage pressure Ramp** –The increase slope of ejector forward pressure buildup time.
2 stage	**Ejector forward 2 stage pressure Ramp** –The increase slope of ejector forward pressure buildup time.
2 stage	**Ejector backward 1 stage pressure Ramp** –The increase slope of ejector backward pressure buildup time.
1 stage	**Ejector backward 2 stage pressure Ramp** –The increase slope of ejector backward pressure buildup time.

No.	**Ejector-Flow Ramp**
1 stage	**Ejector forward 1 stage flow Ramp** –The increase slope of ejector forward speed buildup time.
2 stage	**Ejector forward 2 stage flow Ramp** –The increase slope of ejector forward speed buildup time.
2 stage	**Ejector backward 1 stage flow Ramp** –The increase slope of ejector backward speed buildup time.
1 stage	**Ejector backward 2 stage flow Ramp** –The increase slope of ejector backward speed buildup time.

No.	**Ejector-pressure/ flow**
1 stage	**Ejector setup pressure** –Pressure settings for mold height adjustment
2 stage	**Ejector Setup Flow** –Speed settings for mold height adjustment
	Power Door Press – High speed pressure settings for opening/closing of power door
2 stage	**Power Door Speed –** High speed settings for opening/closing of power door
1 stage	**Power Door Press 2 –** Low speed pressure settings for opening/closing of power door
	Power Door Speed 2 – Low speed settings for opening/closing of power door

No.	**Ejector-Movement time 1**
1 stage	**Ejector vibration time** –Ejector vibration total timing
2 stage	**Ejector forward done valve stop delayed time**– Ejector forward movement done, valve delay stop timing
	Ejector retract done valve stop delayed time– Ejector retract movement done, valve delay stop timing
2 stage	**Eject forward scale valve Dly-** Eject forward open scale valve, delay time for exporting scale valve
1 stage	**Eject backward scale valve Dly-** Eject backward open scale valve, delay time for exporting scale valve
	Power door close stop delayed time–Stop time of Power door close movement delayed

No.	**Ejector-Movement position**
1 stage	**Power door open timing**–Power door open movement time

No.	**Ejector-Movement position**
1 stage	**Ejector position operative zon** – Before mold closing, check ejector backward position allow inaccuracy value.
2 stage	**Ejector backward position upper limit value**

No.	**Eject- Other Ramp**
1 stage	**Ejection end speed Ramp Down** – The slope of injection end speed scale down.
2 stage	**Ejection end press Ramp Down**– The slope of injection end press scale down.

No.	**Eject- Pressure /Flow Upper**
1 stage	**Eject Pres Upper-** Pressure settings for eject height adjustment
2 stage	**Eject Flow Upper-** Flow settings for eject height adjustment

4.5 Core parameters

No.	**Core- Pressure Ramp1**
Core A	**Core A In Pres Ramp**– The increase slope of core A in pressure buildup time.
Core B	**Core B In Pres Ramp**– The increase slope of core B in pressure buildup time.
Core C	**Core C In Pres Ramp**– The increase slope of core C in pressure buildup time.
Core D	**Core D In Pres Ramp**– The increase slope of core D in pressure buildup time.
Core E	**Core E In Pres Ramp**– The increase slope of core E in pressure buildup time.
Core F	**Core F In Pres Ramp**– The increase slope of core F in pressure buildup time.

No.	**Core- Flow Ramp1**
Core A	**Core A In Flow Ramp**– The increase slope of core A in speed buildup time.
Core B	**Core B In Flow Ramp**– The increase slope of core B in speed buildup time.
Core C	**Core C In Flow Ramp**– The increase slope of core C in speed buildup time.
Core D	**Core D In Flow Ramp**– The increase slope of core D in speed buildup time.
Core E	**Core E In Flow Ramp**– The increase slope of core E in speed buildup time.
Core F	**Core F In Flow Ramp**– The increase slope of core F in speed buildup time.

No.	**Core- Pressure Ramp2**
Core A	**Core A Out Pres Ramp**– The increase slope of core A out pressure buildup time.
Core B	**Core B Out Pres Ramp**– The increase slope of core B out pressure buildup time.
Core C	**Core C Out Pres Ramp**– The increase slope of core C out pressure buildup time.
Core D	**Core D Out Pres Ramp**– The increase slope of core D out pressure buildup time.
Core E	**Core E Out Pres Ramp**– The increase slope of core E out pressure buildup time.
Core F	**Core F Out Pres Ramp**– The increase slope of core F out pressure buildup time.

No.	**Core- Flow Ramp2**
Core A	**Core A Out Flow Ramp**– The increase slope of core A out speed buildup time.
Core B	**Core B Out Flow Ramp**– The increase slope of core B out speed buildup time.
Core C	**Core C Out Flow Ramp**– The increase slope of core C out speed buildup time.
Core D	**Core D Out Flow Ramp**– The increase slope of core D out speed buildup time.
Core E	**Core E Out Flow Ramp**– The increase slope of core E out speed buildup time.
Core F	**Core F Out Flow Ramp**– The increase slope of core F out speed buildup time.

No.	**Core-Movement time**
Core A	**Core forward time delayed**– Core forward time is slower then the output time.
Core B	**Core backward time delayed**– Core backward time is slower then the output time.
Core C	**Core forward starting scale valve delay open**–The pressure and speed after the core in movement start is slower than the output time.
Core D	**Core forward end direction valve delay stop**–Stop the pressure flow of the core in movement first then delay the stop time if the direction valve.
Core E	**Core backward starting scale valve delay open**–The pressure and flow after the core in movement start is slower than the output time.

Core F	**Core backward end direction valve delay stop**–Stop the pressure flow of the core out movement first then delay the stop time if the direction valve

No.	**Core - Other**
Core A	**Core protection** –Setup (1) to activate core protection function
Core B	

No.	**Core – Other Ramp**
Core A	**Core end speed Ramp Down** – The slope of injection end speed scale down.
Core B	**Core end press Ramp Down**– The slope of injection end press scale down.

No.	**Core – Presses /Flow**
Core B	**Core Pres Upper-** Pressure settings for core height adjustment
Core C	**Core Flow Upper-** Pressure settings for core height adjustment

4.6 Nozzle parameters

No.	**Nozzle-Pressure Ramp**
2 stage	**Nozzle forward slow speed pressure Ramp**– Increase slope of the nozzle forward slow speed pressure buildup time.
1 stage	**Nozzle forward pressure Ramp**– Increase slope of the nozzle forward pressure buildup time.
1 stage	**Nozzle backward pressure Ramp**– Increase slope of the nozzle for backward pressure buildup time.
2 stage	**Nozzle backward slow speed pressure Ramp**– Increase slope of the nozzle **backward** slow speed pressure buildup time.

No.	**Nozzle - flow Ramp**
2 stage	**Nozzle forward slow speed flow Ramp**–Increase slope of the nozzle forward slow speed buildup time.
1 stage	**Nozzle forward flow Ramp**–Increase slope of the nozzle forward speed buildup time.
1 stage	**Nozzle backward flow Ramp**–Increase slope of the nozzle forward speed buildup time.
2 stage	**Nozzle backward slow speed flow Ramp**–Increase slope of the nozzle **backward** slow speed buildup time.

No.	**Nozzle-Pressure**
2 stage	**Nozzle setup pressure** – Nozzle pressure for mold height adjustment
1 stage	**Nozzle setup flow**– Nozzle speed for mold height adjustment

No.	**Nozzle-Movement time**
2 stage	**First nozzle slow speed time-** nozzle\slow speed forward timing.
1 stage	**Nozzle forward end direction valve delay stop** –Stop the pressure flow of the nozzle in movement first then delay the stop time if the direction valve.
	Nozzle backward end direction valve delay stop –Stop the pressure flow of the nozzle out movement first then delay the stop time if the direction valve
1 stage	**Nozzle forward scale valve delay** – When nozzle forward start, the output time of scale valve delay
2 stage	**Nozzle backward scale valve delay** –When nozzle backward start, the output time of scale valve delay

No.	**Nozzle- Other Ramp**
2 stage	**Nozzle end speed Ramp Down** – The slope of injection end speed scale down.
1 stage	**Nozzle end press Ramp Down**– The slope of injection end press scale down.

No.	**Nozzle-Pressure/ Flow Upper**

2 stage	**Nozzle Pres Upper-** Pressure settings for nozzle height adjustment
1 stage	**Nozzle Flow Upper-** Flow settings for nozzle height adjustment

4.7 Temperature parameters

No.	**Temperature-Exercise selection 1**
0	**1 stage temperature exercise** –Temperature 1 stage is not use when the setting is 0 during the 1 stage warming buffering zon.
1	**2 stage temperature exercise** –Temperature 2 stage is not use when the setting is 0 during the 2 stage warming buffering zon.
2	**3 stage temperature exercise** –Temperature 3 stage is not use when the setting is 0 during the 3 stage warming buffering zon.
3	**4 stage temperature exercise** –Temperature 4 stage is not use when the setting is 0 during the 4 stage warming buffering zon.
4	**5 stage temperature exercise** –Temperature 5 stage is not use when the setting is 0 during the 5 stage warming buffering zon.
5	**6 stage temperature exercise** –Temperature 6 stage is not use when the setting is 0 during the 5 stage warming buffering zon.

No.	**Temperature-Exercise selection 2**
0	**7 stage temperature exercise** –Temperature 7 stage is not use when the setting is 0 during the 1 stage warming buffering zon.
1	**8 stage temperature exercise** –Temperature 8 stage is not use when the setting is 0 during the 2 stage warming buffering zon.
2	**9 stage temperature exercise** –Temperature 9 stage is not use when the setting is 0 during the 3 stage warming buffering zon.

No.	**Temperature-Barrel temperature**
0	**Barrel temperature upper limit alarm value**–Barrel temperature alarm upper limit
1	**Barrel temperature lower limit alarm value**–Barrel temperature alarm lower limit
2	**Cooler On Deviate** – Hydraulic oil cooler activation temperature
3	**Cooler Off Deviate** – Hydraulic oil cooler deactivation temperature
4	**Temperature Not Up** – Setting for temperature warning (°C increase per 3 minutes)

No.	**Temperature-Oil temperature**
0	**Oil Temp Up Limit** – Hydraulic oil temperature upper limit
1	**Oil Temp Low Limit** – Hydraulic oil temperature lower limit
2	**Temp Cooler On** – Barrel cooler activation temperature
3	**Temp Cooler Off** – Barrel cooler deactivation temperature

No.	**Temperature-Oil temperature preheat**
0	**Oil temperature preheat usage**– Oil temperature preheat for usage.
1	**Oil temperature preheat pressure**–Oil temperature preheat pressure
2	**Oil temperature preheat speed**–Oil temperature preheat speed

4.8 Fast set parameters

No.	Fast set- time
0	**Motor protection time** –Motor activate done, timing maintained
1	**Motor Start time** – Motor Y starting time
2	**Motor rest time** – Y turn ∆ ,intermediate timing

No.	Fast set-Lubricating 1
0	**After power ON lubricating will not activate among the 1 and 2 mold**–The 1 and 2 mold will not activate lubricating movement after power ON.
1	**Auto lubrication mold number** – Lubrication counting after few circular numbers.
2	**Auto lubrication timing**–The usage of the data of lubrication movement time and mode are different according to current period.
3	**Auto lubrication delay** – Lubrication movement interval time
4	**Auto lubrication total time**–Total lubricating time

No.	Fast set-Lubricating 2
0	**2 stage auto lubricating mold number** – 2 stage lubricating activate mold number
1	**2 stage auto lubricating timing -** 2 stage lubricating movement time.

No.	Fast set-Scale open pump system
0	**Flow scale open 1** – Other flow 1 scale open
1	**Flow scale open 2** – Other flow 2 scale open
2	**Flow scale open 3** – Other flow 3 scale open
3	**Flow scale open 4** – Other flow 4 scale open
4	**Flow scale open 5** – Other flow 5 scale open
5	**Flow scale open 6** – Other flow 6 scale open
6	**Flow scale open 7** – Other flow 7 scale open
7	**Flow scale open 8** – Other flow 8 scale open

No.	Fast set-Pump system open delayed
0	**Pump Dly On –** Delay time for activating hydraulic pump

No.	Upper
0	**Adjust Press Upper -** Pressure settings for Adjust height adjustment
1	**Adjust Flow Upper -** Pressure flowing for Adjust height adjustment

5 Alarm/Error Message Index

In case of an error the corresponding alarm message will be displayed in the status bar in the lower left part of your screen just above the *F1 – F10* keys (please refer to the *Overview* section for exact location of the status bar). You can see the alarm messages regardless of the screen you are currently using. In case of multiple alarms the status bar will display the most important alarm.

For a more detailed description and analysis of the error(s) that caused the alarm you can switch to the *Error Messages Display Screen* by pressing the *(F6) Alarm* key. In case of multiple alarms this screen allows you to verify any error/alarm messages the status bar might not have displayed.

Please refer to the *Error Messages Display Screen* section for more information.

Alarm/Error Message Explanation:

1 - "Temperature Error" – Indicates a barrel heating temperature problem/possible malfunction. Check the settings and current temperature. Please refer to the *Temperature Control* section of this manual for additional information.

2 - **"Please Close Door"** – Prompt in *Semi-auto* mode to close the door to start the next production cycle. Please refer to the *Machine Control Panel Keys* section of this manual for additional information.

3 - "Please Open Door" – Prompt in *Semi-auto* mode to open the door at the end of the production cycle. Please refer to the *Machine Control Panel Keys* section of this manual for additional information.

4 - "Off Man./Emerg. Key" – Indicates the machine has been stopped as a result of pressing either the *Manual* key or the *Emergency* button. Release the *Emergency* key if necessary to resume machine operation.

5 - "Oil Temp. Over" – Indicates the hydraulic oil temperature is too low or too high. Check the parameter settings and adjust if necessary. In case of overheating make sure the cooling system is turned on. In case of low temperature make sure the hydraulic motor is turned on and wait until the motor has warmed up the hydraulic oil sufficiently.

6 - "Cycle Time Exceeded" – Indicates the production cycle time during the last cycle has been outside the preset limits. Check *Monitor 1* for more details. Please refer to the *Monitoring Settings 1 (Automatic Alarm)* section of this manual for more information.

7 - Reserved (not used)

8 - "Eject Position Error" – Indicates an ejector position problem. Check the ejector position as well as the relevant potentiometer.

9 - "Inject Cushion Error" – Indicates the injection parameters during the last production cycle have been outside the preset limits. Check *Monitor 1* for more details. Please refer to the *Monitoring Settings 1 (Automatic Alarm)* section of this manual for more information.

10 - "Purge Guard Opened" – Indicates that the injection unit cover is open. Please close the cover to resume machine operation.

11 - "Robot Malfunction" – Indicates a robot problem. Check and reset robot to resume machine operation.

12 - **"No. of Shots Reached"** – Indicates the preset number of production cycles has been reached. Please refer to the *Production Control* section of this manual for more information.

13 - "Mold Open Time Out" - Indicates the mold opening parameters during the last production cycle have been outside the preset limits. Check *Monitor 1* for more details. Please refer to the *Monitoring Settings 1 (Automatic Alarm)* section of this manual for more information.

14 - **"Part Not Dropped"** – Indicates an ejection failure while in *Photo Sensor* mode. Remove the mold product before resuming machine operation. Please refer to the *Machine Control Panel Keys* section of this manual for additional information.

15 - "Hopper Empty" – Refill the hopper with plastic granulate.

16 - **"Mold Close End Error"** – Indicates the mold closing parameters during the last production cycle have been outside the preset limits. Check *Monitor 1* for more details. Please refer to the *Monitoring Settings 1 (Automatic Alarm)* section of this manual for more information.

17 - "Pos. Setting Error" – Indicates inconsistent position settings for either *Mold Closing*, *Mold Opening*, *Suck-back* or *Charge (Plasticizing)* settings. Check the relevant settings.

18 - "Finish Auto Adjust" – Indicates the automatic *Mold Height Adjustment* has been completed. Please refer to the *Machine Operating Mode Keys* section of this manual for additional information.

19 - "Lubr. Oil Level Error" – Indicates the lubrication oil level is too low. Check the oil level and fill up if necessary.

20 - "Inj. Start Pos. Error" – Indicates the injection parameters during the last production cycle have been outside the preset limits. Check *Monitor 1* for more details. Please refer to the *Monitoring Settings 1 (Automatic Alarm)* section of this manual for more information.

21 - "Screw Rpm Error" – Indicates a problem during screw operation. Check the *Charge (Plasticizing)* settings and make sure the hopper is no empty.

22 - "Inject Time Error" – Indicates the injection parameters during the last production cycle have been outside the preset limits. Check *Monitor 1* for more details. Please refer to the *Monitoring Settings 1 (Automatic Alarm)* section of this manual for more information.

23 - "Opn 1-Slow Pos. Error" – Indicates a problem during automatic *Mold Height Adjustment*. Check the transition position from slow to fast movement during *Mold Opening*. Adjust if necessary.

24 - "Mold Protection Error" – Indicates that the mold could not close properly. Check if the molding product has been completely ejected. Adjust mold settings if necessary.

25 - "Decompress End Error" – Indicates *Suck-back* could not be executed according to the settings. Check and adjust settings if necessary.

26 - "Charge End Error" – Indicates that the screw could not reach the set end position during *Charge (Plasticizing)*. Make sure the hopper is not empty and adjust settings if necessary.

27 - "Pack Count Reached" – Indicates the preset number of product packs has been reached. Please refer to the *Production Control* section of this manual for more information.

28 - "Core Pull End Error" – Indicates the core has not reached the preset end position (limit switch). Check the core position and make sure it is moving freely.

29 - Reserved (not used)

30 - "Lubrication Fail" – Indicates a lubrication problem. Check the lubrication system.

31 - "Oil Level too Low" – Indicates the hydraulic oil level is too low. Check the hydraulic oil level and fill up if necessary.

32 - "Oil Filter Blocked" – Indicates a blocked hydraulic oil filter. Check the filter and clean if necessary.

33 - "Ptm. Board Check Error" – Indicates a communication problem with the potentiometer board. Check board for possible causes.

34 - "Adjust End Touched" – Warning message indicating the moving platen has reached the backward end position (limit switch). Do not move platen/mold further backward to avoid damage to the machine.

35 - Reserved (not used)

36 - "C. P. Active Pos. Error" – Indicates a core position settings problem. Verify the core settings and mold position at time of core activation and change if necessary.

37 - "C. P. Set Error" – Indicates a problem with the core in/out activation positions. Verify settings and change if necessary.

38 - **"Waiting Air Mold"** – Indicates the controller is waiting for signal form air injection system.

39 - "Adj. Sensor Fail." – Indicates automatic *Mold Height Adjustment* failure. Check the pressure and speed settings and verify if the platen/mold is moving.

40 - "Cool Water Prs Low" – Indicates low cooling water pressure. Check cooling system.

41 - "Switching Mold" – Status message during mold switching.

42 - **"Waiting Robot"** – Status message during robot operation.

43 - "Pls Press Close Key" – Prompt in *Auto* mode to press Close Mold key to start machine operation.

44 - "Eject Not Back" – Indicates the ejector has not reached the end position (limit switch). Check the ejector.

45 - Reserved (not used)

46 - "Lub. Filter Fail" – Indicates a problem with the lubrication oil filter. Check filter for possible causes.

47 - Reserved (not used)

48 - "Motor Fail" – Indicates a hydraulic pump motor failure. Check motor for possible causes.

49 - "Pls Press Start Key" – Prompt in *Semi-auto* mode to press *Start* key to start machine operation.

50 - "Pls Close Rear Door" – Indicates an open rear door. Close door to resume machine operation.

51 - Reserved (not used)

52 - "Manual Open/Eject" – Prompt in *Manual* mode to execute *Mold Opening* and *Ejection* manually to prevent possible damage to machine.

53 - "Motor Overload" – Indicates problem with hydraulic pump motor. Check the motor for possible causes.

54 - Reserved (not used)

55 - Reserved (not used)

56 - "Manual Open" – Prompt in *Manual* mode to execute *Mold Opening* manually to prevent possible damage to machine.

57 - "Temperature not up" – Indicates a barrel heating temperature error. The pre-set temperature could not be reached. Check the barrel heater.

58 - "Safe B. Plate Fail" – Indicates possible object on bottom plate. Remove any objects to resume machine operation.

59 - Reserved (not used)

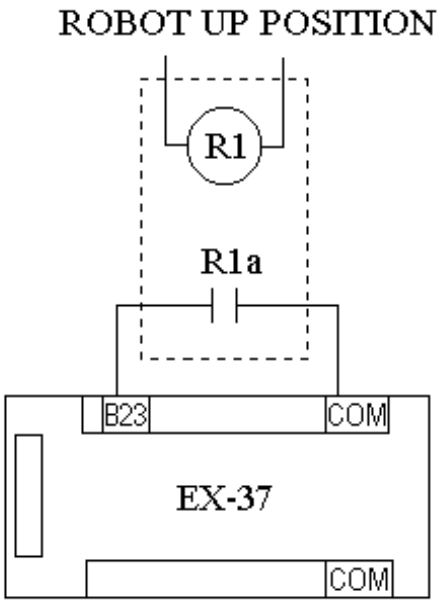
60 - Reserved (not used)

61 - **"Pls Close Upper Cover" -** Indicates an open top cover. Close the cover to resume machine operation.

6 Robot Installation (Optional)

If you want to install a robot on the machine, the C-6000 controller provides a protection circuit for robot control and mold protection. Please refer to below diagram for robot circuit wiring.

- Connect the robot to the appropriate input point (default is PB23).
- Connect the robot to the appropriate output point (default is PC28).
- Activate the robot mode in the *Other Settings* screen (refer to the *Other Functions and Settings* section).



ROBOT PC OUTPUT