HYRobotics Robot Training Program

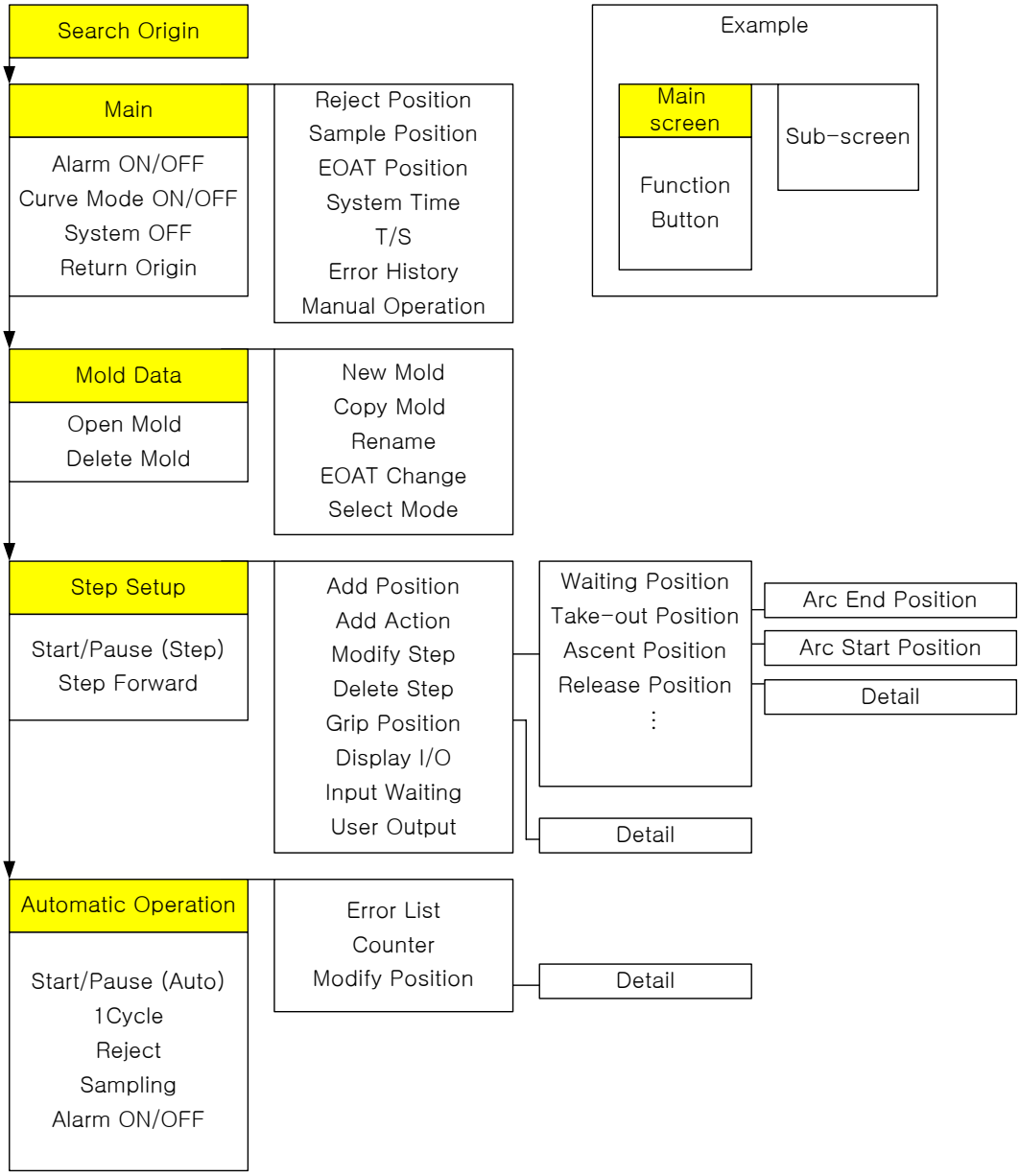
LEVEL 2

(Level 1 Training required)

HYROBOTICS CORP

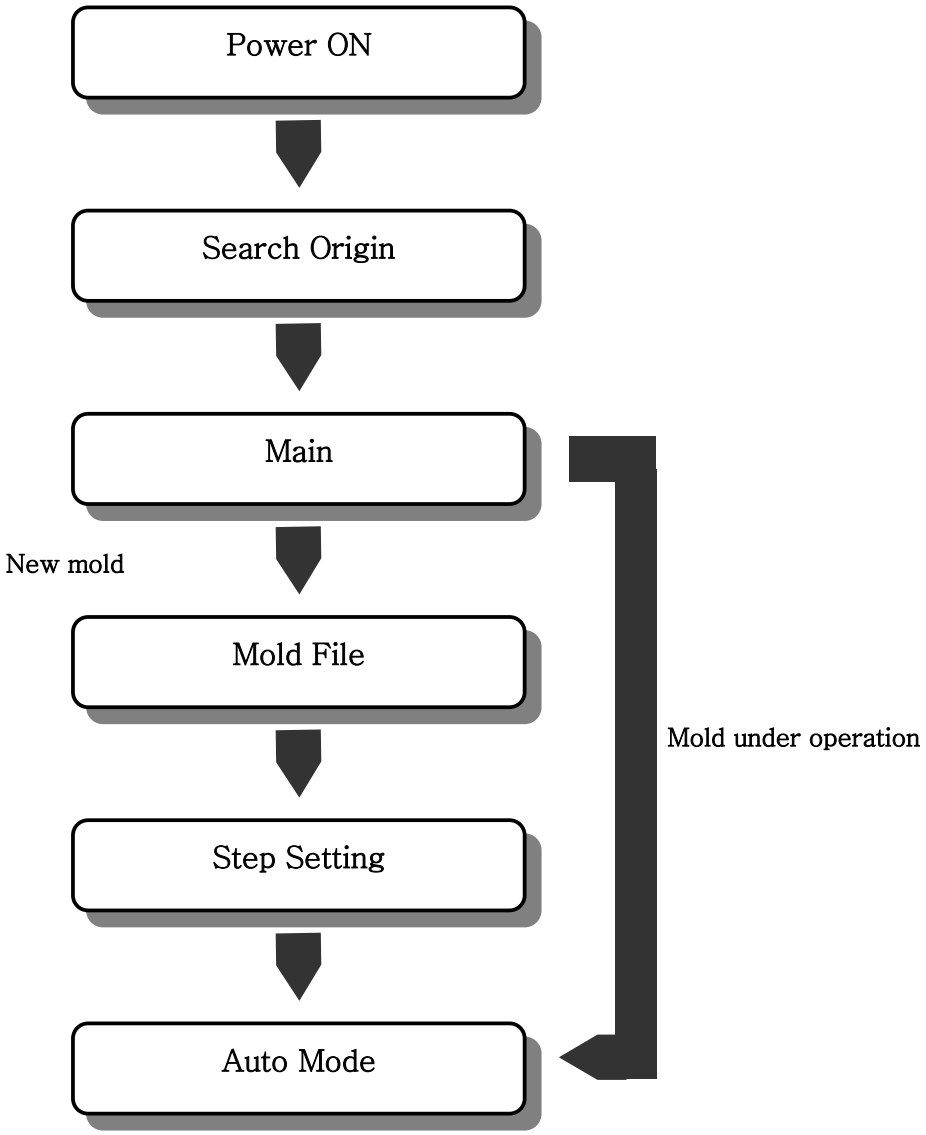
WWW.HYROBOTICS.COM

- **Screen Structure**

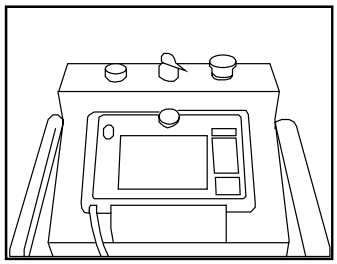


STEP FOR START-UP

Follow step for Auto Operation

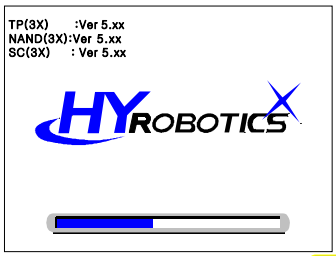


• Simple Start Up



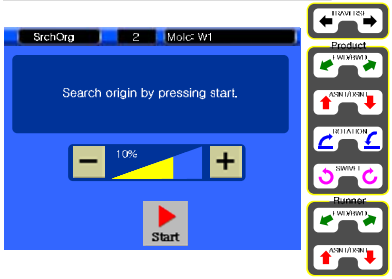
● STEP 1

Turn On Power..



● STEP 2

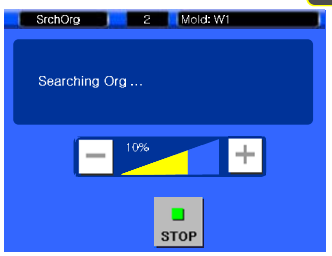
It will display System Version. And move to origin screen.



● STEP 3

Press  for origin point of robot motion.

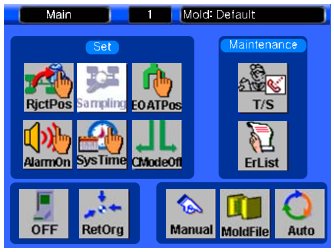
Before move to Origin, make sure the robot arm is in safe location. If robot arm is not if safe location, move robot arm manually to safe location with manual button.



● STEP 4

In case origin searching is completed, move to Main screen.

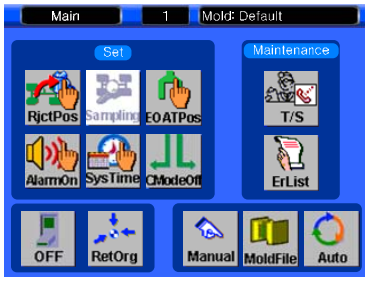
(Press  and Robot stop)



● STEP 5

Robot is in Main Screen to go to Manual or Auto

• Going Back To Auto

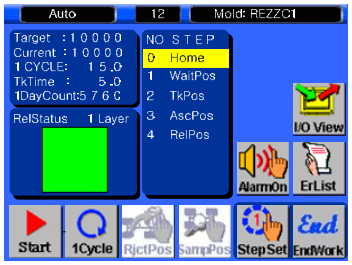


● **STEP 1**

(If there is mold operated before)

Press 

and move to Auto Mode Screen.

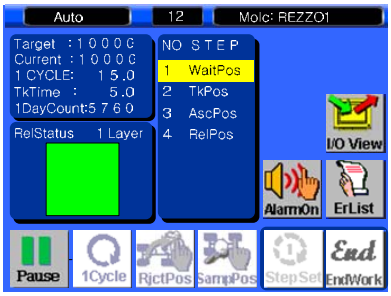


● **STEP 1**

Press 

and start Auto Operation

• Stop Operation



● **STEP 1**

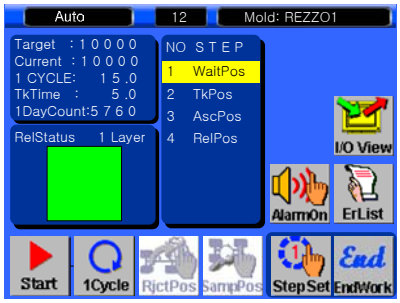
In order to stop Automatic operation before completing object quantity, press 

.

When the step under progress is completed, robot stops temporarily

is switched to 

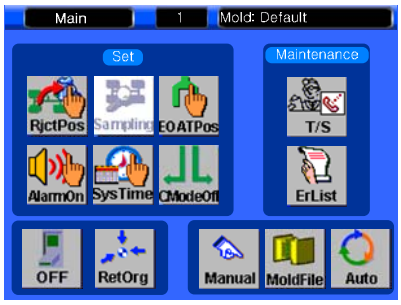
.



● **STEP 2**

Press 

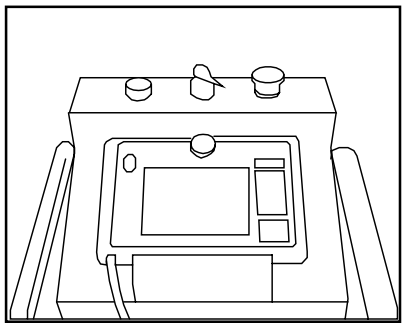
and move to Main Screen.



● **STEP 3**

In order to turn off Robot, press 

.



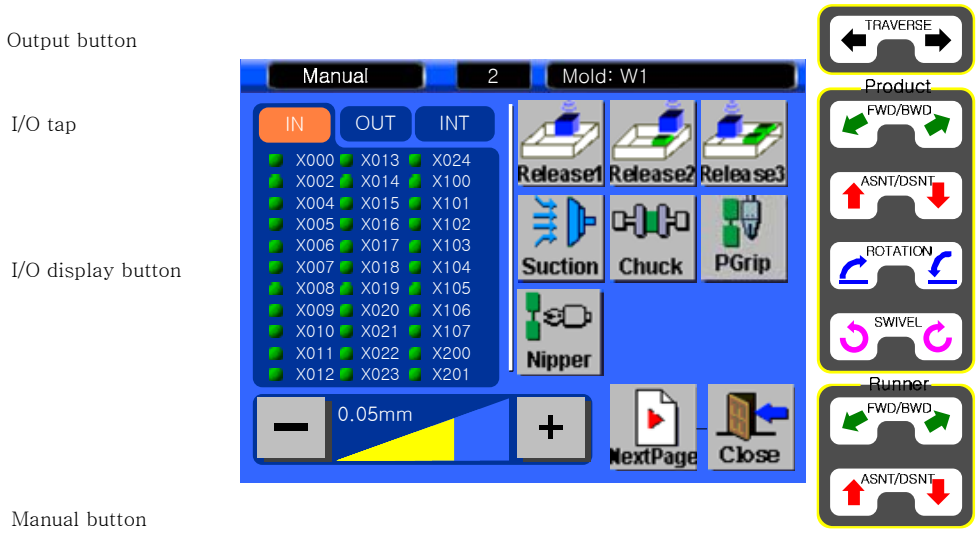
● **STEP 4**

Turn Off Power.

Manual

(1) Description

This checks I/O and operates each axis and output manually.

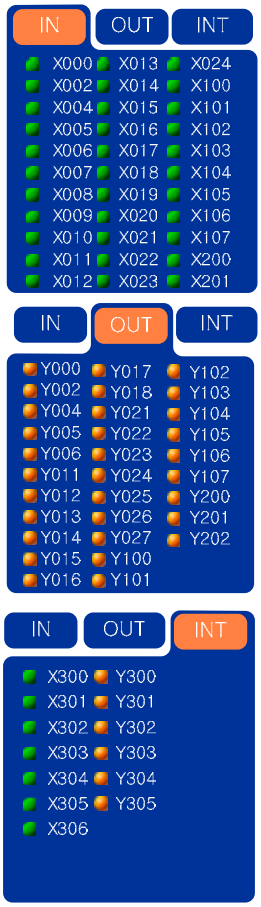


(2) Button Function

NO	Button	Description
1	IN	Display input signal.
2	OUT	Display output signal
3	INT	Display interlock signal
4	Release1	Turns on/off release 1 valve.
5	Release2	Turns on/off release 2 valve.
6	Release3	Turns on/off release 3 valve.
7	Suction	Turns on/off suction valve.[Suction On/Suction Off]
8	Chuck	Turns on/off chuck valve.[Chuck On/Chuck Off]
9	PGrip	Turns on/off product grip valve.[Product Grip On/Product Grip Off]

NO	Button	Description
10		Turns on/off Spare 1 Output.
11		Turns on/off Spare 2 Output.
12		Turns on/off Spare 3 Output.
13		Turns on/off Spare 4 Output.
14		Turns on/off User Output 1.
15		Turns on/off User Output 2.
16		Turns on/off User Output 3.
17		Turns on/off User Output 4.
18		Turns on/off User Output 5.
19		Turns on/off User Output 6.
20		Turns on/off User Output 7.
21		Turns on/off User Output 8.
22		Show Next page
23		Show Previous Page
24		Move to Main screen.

Check Input and output signal



Input on display

Output on display

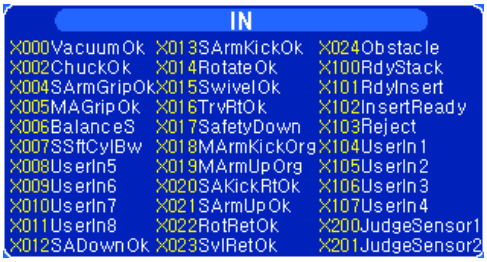
Off display

Pressing IN displays input signal on I/O display button. Press I/O display button in order to see description on input signal. Input signal description window appears.

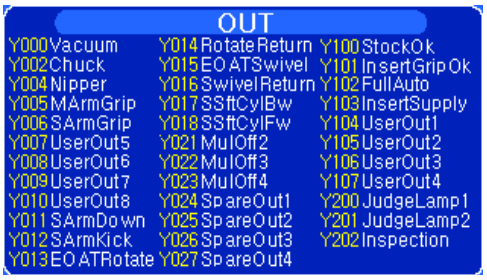
Pressing OUT displays output signal on I/O display button. Press I/O display button in order to see description on output signal. Output signal description window appears.

Pressing INT displays interlock signal on I/O display button. Press I/O display button in order to see description on interlock. Interlock signal description window appears.

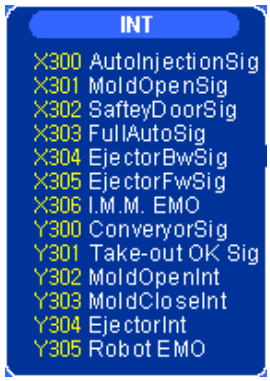
Signal Description Window



<Input signal description window>

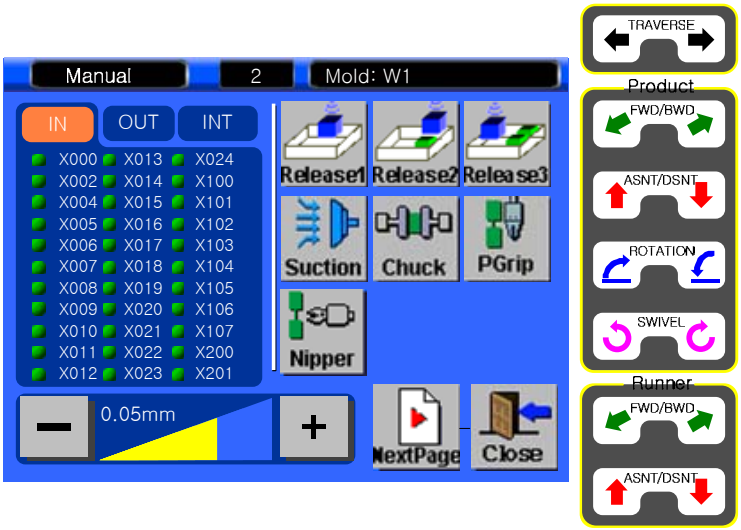


<Output signal description window>



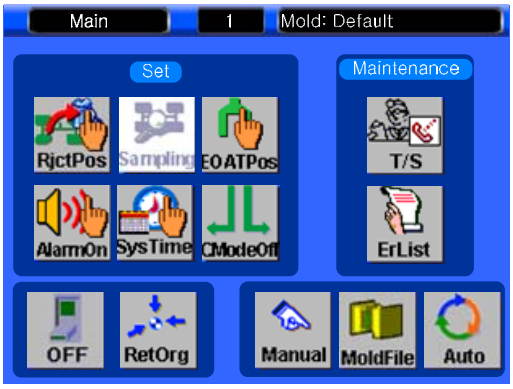
<Interlock signal description window>

- **Go To Mold File Control Screen**



Close Manual Mode go to Main Screen

Mold File Screen



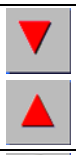
● **STEP 1**

Press move to Mold File Screen.

(1) Description

This creates, opens and copies Mold File, changes Mold File name, and changes jig.

(2) Button Fuction

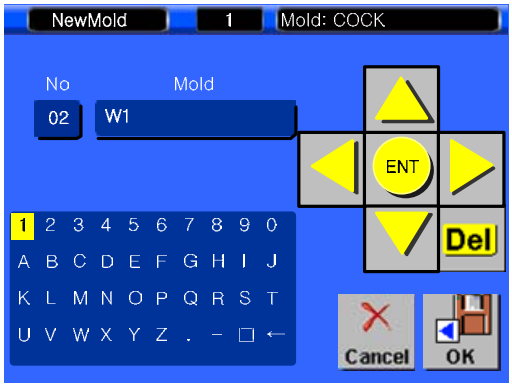
NO	Button	Description
1		Selects Mold File by moving focus up and down.
2		Moves to New Mold screen which creates new mold.
3		Opens Mold File where focus is located.
4		Moves to Mold Copy screen which copies data of Mold File where focus is located.
5		Moves to Change Name screen which changes name of Mold File where focus is located.
6		Cancels Mold File. Pressing cancel button displays a message [cancel mold name?], and [yes] cancels it and [no] does not cancel it. In case [YES] or [NO] is pressed, message window disappears.
7		Moves to EOAT Change screen which changes jig.
8		Moves to Main screen.
9		Moves to Step Setup screen.
10		Move to Mold Select screen

1 New Mold

(1) Description

This creates Mold File which has mold number and mold name.

Search mold number as blank number Automatically, and input mold name using alphabet selection and Enter button.



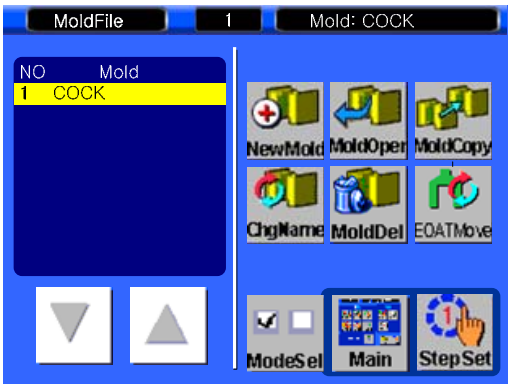
(2) Button Fuction

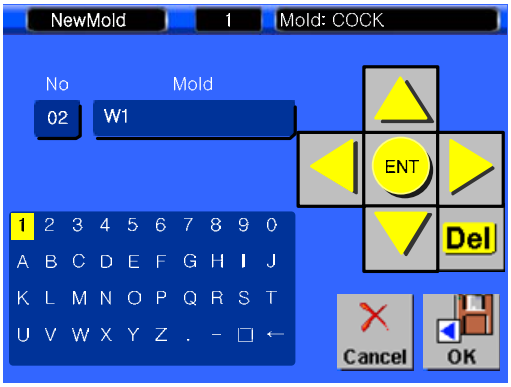
NO	Button	Description
1	Arrow button	Move cursor in text plate
2		Save the text with cursor
3		Delete text and number
4		Create new mold name and move back to set up screen.
5		Cancel to creat new mold

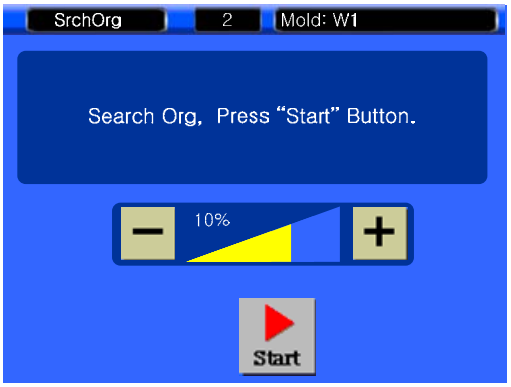
NOTICE Press and activate mold number input window in order to set up mold number arbitrarily. Other than figure cannot be inputted on mold number input window; inputting existing mold number displays a message “mold number already exists” and pressing  makes window disappear.

NOTICE Two Same Mold file can be created in one robots control.

(3) Example





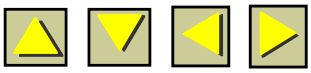


● **STEP 1**

Press 

and move to new mold name set up screen.

● **STEP 2**

Press  to move cursor,

Press 

, save text.

Press 

, move to origin (homing) screen

● **STEP 3**

Press 

, robot arm move to origing point of new mold. Go back to main screen.

2 Copy Mold File

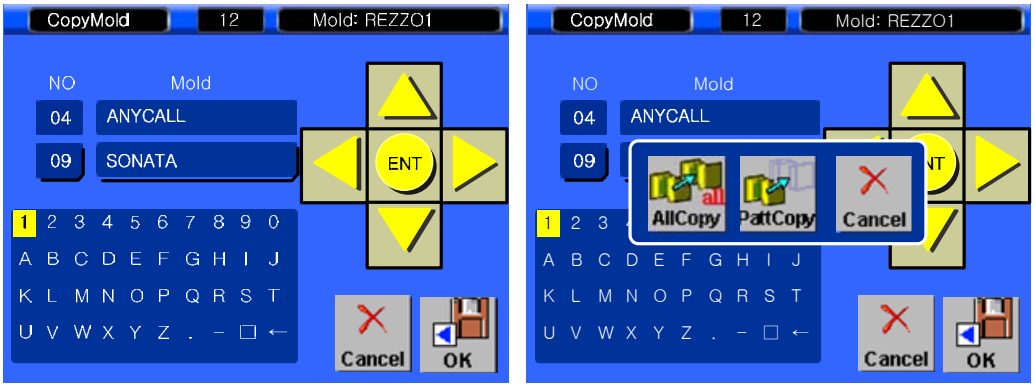
(1) Description

This copies Mold File and creates new Mold File.

Copy includes the pattern copy which copies location and action of Mold File and the entire copy containing location value, delay time and speed value.

Mold number is given automatically by searching blank number, and mold name is inputted by using Arrow and Enter keypad.

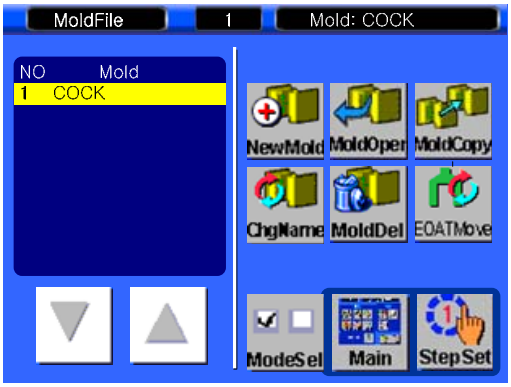
Copy type selection



(2) Button Function

NO	Button	Description
1	Arrow button	Move cursor to select text and number.
2	ENT	Input number or text in Cursor.
3	Del	Delete input number and text.
4	OK	Show copy method. (All Copy and Pattern only Copy)
5	Cancel	Cancel Copy
6	AllCopy	Copy all information and move to next screen.
7	PattCopy	Copy of Robot motion pattern except position data. And move to mold maintenance screen.

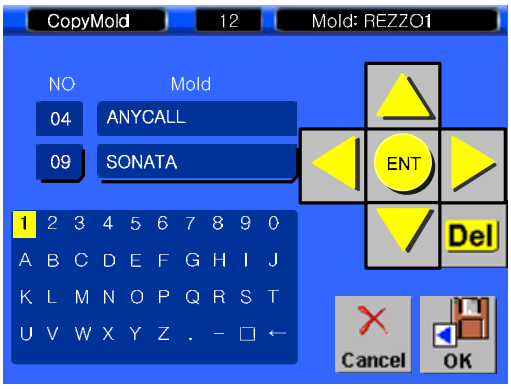
How to copy mold



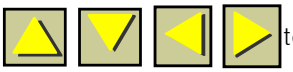
● **STEP 1**

Touch 

, move to copy screen



● **STEP 2**

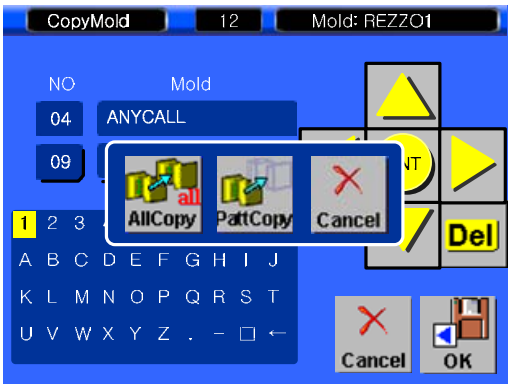
Touch 
to move cursor,

touch 

to save text.

Touch 

move to servo origin point.



● **STEP 3**

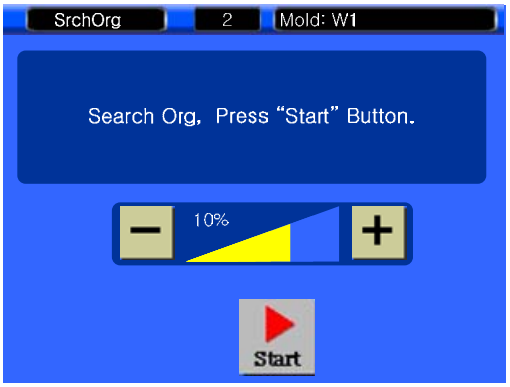
To copy all information, touch or press 

.

To copy only pattern of motion except position information, press 

Press 

will move to servo origin point.



● **STEP 4**

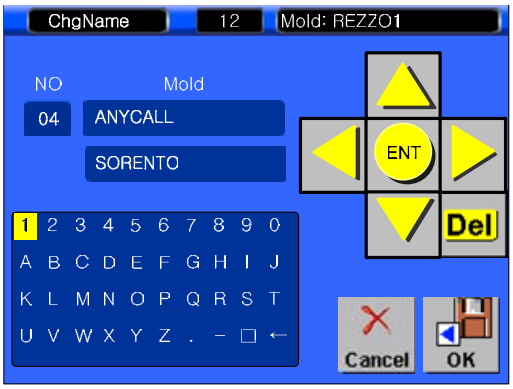
Press 

, to start servo origin point and move to mold maintenance screen.

Change Mold Name

(1) Description

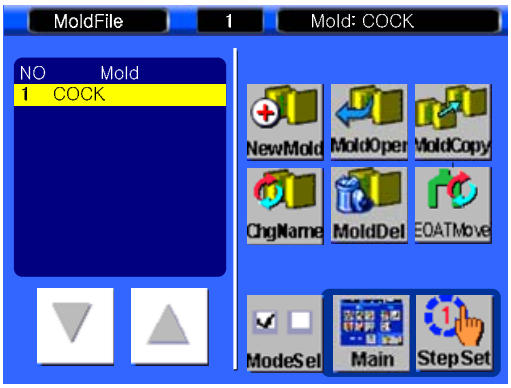
This changes mold name of Mold File



(2) Button Function

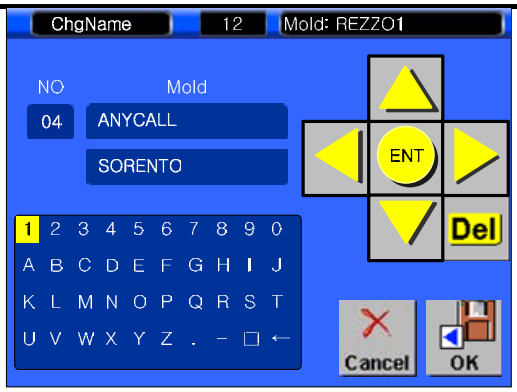
NO	Button	Description
1	Arrow button	Move cursor
2		Input text in the cursor
3		Delete text
4		Save name and move to mold maintenance screen
5		Cancel.

(3) Change Mold Name

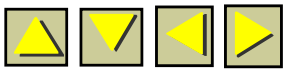


- **STEP 1**

Touch  move to change screen.



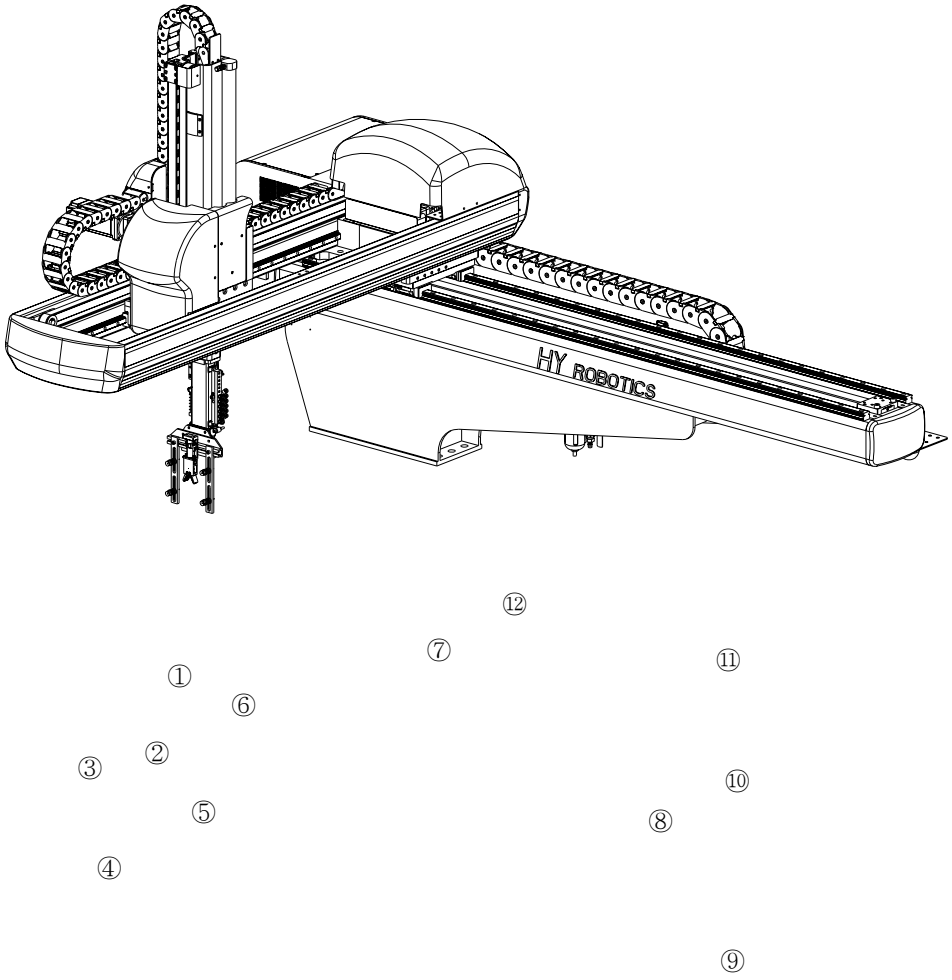
● **STEP 2**

Use  and select text.,

Press  to save.

Press  to move maintenance screen.

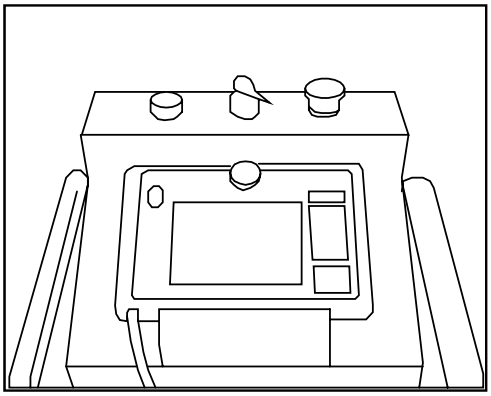
1. Setup Basic Program

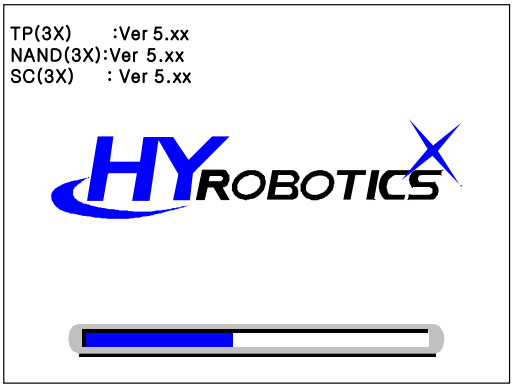


Hyrobotics Robot (NEXIA, HYBRID, ZEST) require only 4 Basic Position for Setting up new mold program.

①. Waiting Position : Robot wait position until Mold Open
②. Take-out Position : Robot Pick the parts up position in the mold
③. Ascent Position : Robot up position after pick up parts (Molding start cycle)
④. Release Position : Robot release parts on conveyor or table.

2 Start up





Loading state bar

● **STEP 1**

Turn On Power.
Power lamp becomes on.

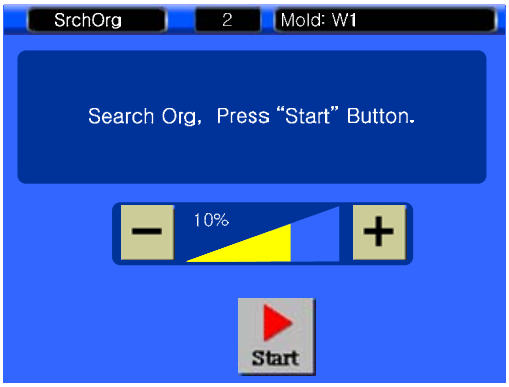
● **STEP 2**

Log screen appears, and loading state bar indicates data loading level.

In case loading state bar is all full, move to origin searching screen.

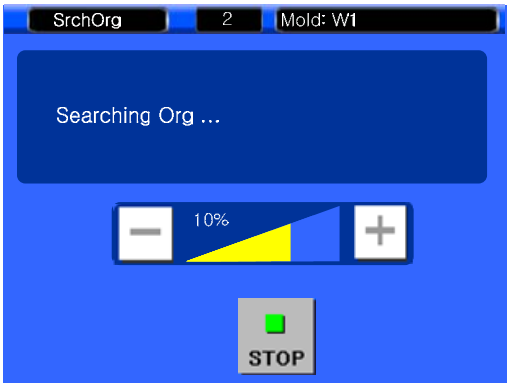
3 Searching Origin

NOTICE Confirm Robot is not interfere with any obstacle.
Move robot arm with manual button.



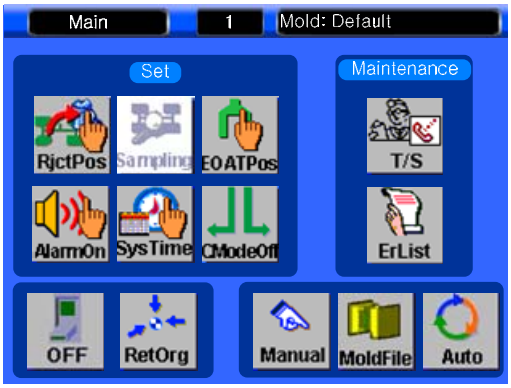
● **STEP 3**

Confirm Robot is not interfere with any obstacle and Press  to homing position



After finished homing, robot will back to main screen.

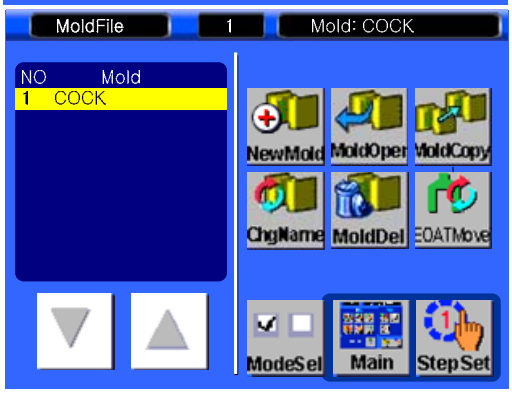
4 Create New mold (Might need to Login)



● **STEP 4**

Press 

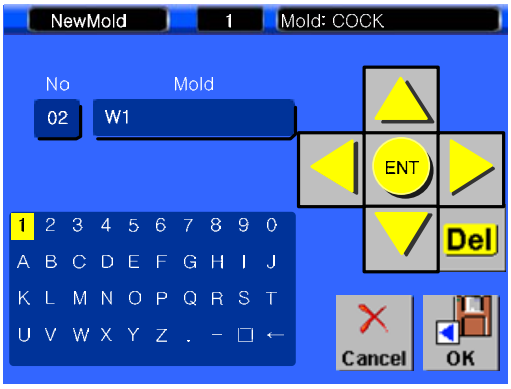
to set up mold.



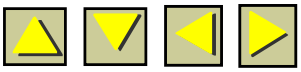
● **STEP 5**

Press 

to creat new mold.



● **STEP 6**

Press  to move cursor to desired text, press 

to input.

Press 

to move back to mold manager screen.

5 Step Setting.

● STEP 7

Press  to move to Step Setting screen.

● STEP 8

Press  to Forward [No Setting of position] Display if there is no information.

Press  to close.

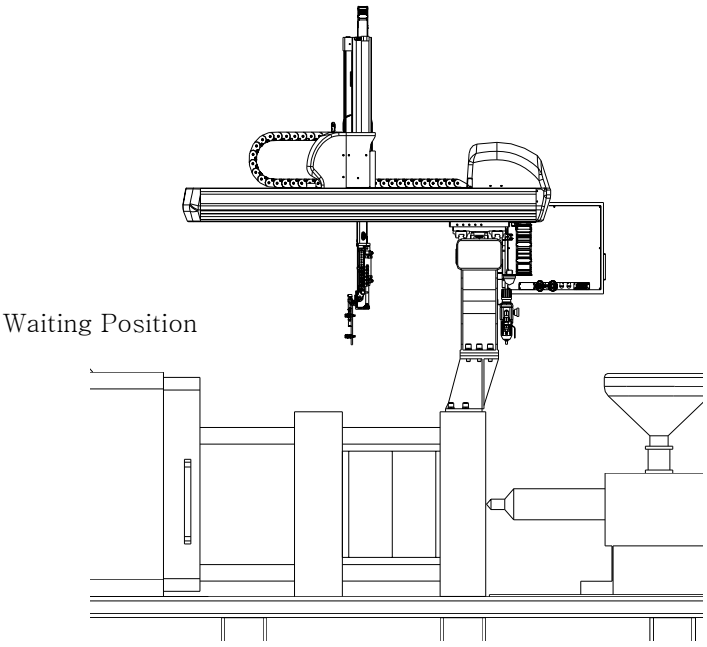
● STEP 9

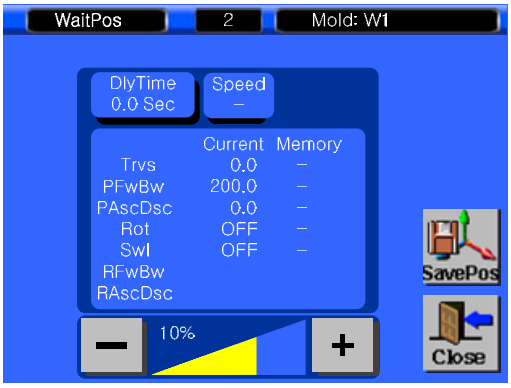
Cursor moved to WaitPos..

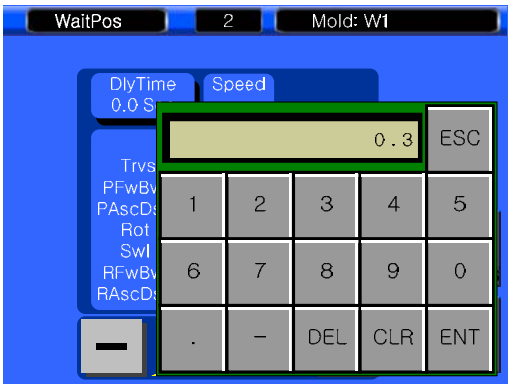
Press  to input WaitPos (Waiting Position)

Wait Position is only can be changed Step Modification.

6 Setting Waiting Position







● STEP 10

[Delay time 0.3 Sec before move to Waiting Pos,]

Press DlyTime 0 .0 Sec and display numeric keypad.

(This is for delay time from last step to current step)

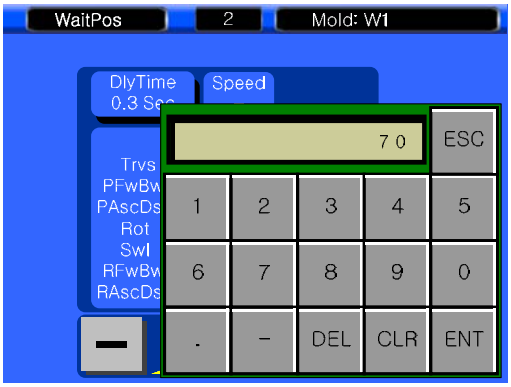
Press 0 . 3 , Press ENT to save and close.

● STEP 11

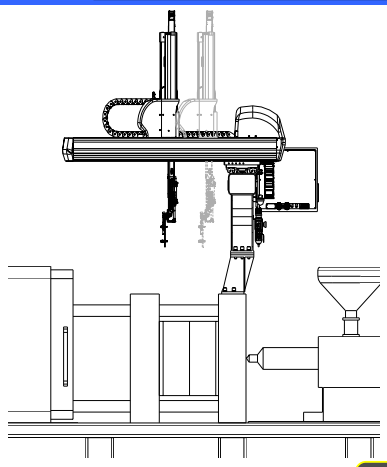
[Speed Setting 70%]

Press Speed – to input Speed Setting.

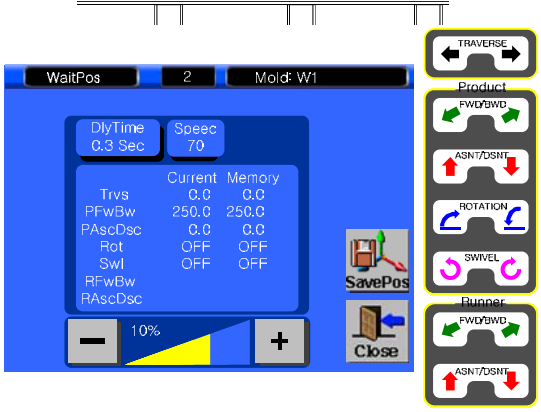
100% is maximum speed.



Press 7 0 , Press ENT to save and close windows.



Position		
Axis	Origin	Waiting
Traverse	0 mm	0 mm
PFwBw	200 mm	250 mm
PAscDsc	0 mm	0 mm
Rot	OFF	OFF

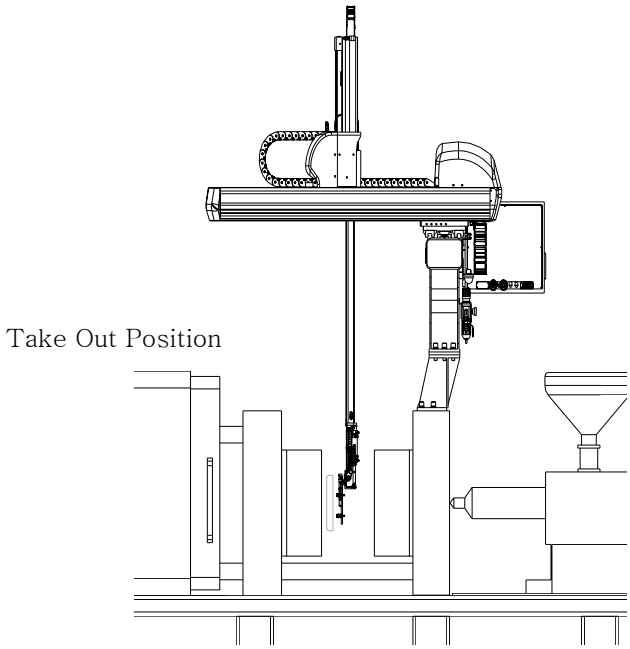


● STEP 12

[Setting Waiting Position to Traverse 0mm, Kick, 250 mm, Up and Down is 0 mm, Rotation OFF로 설정]

Move robot arm with manual button until you get current position as desired number and press SavePos to save and close.

7. Take Out Position Setting



● STEP 13

Press  and display Non Data Setting..

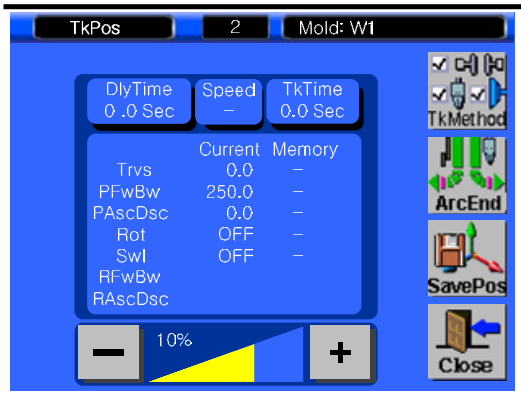
Press  to close

● STEP 14

Step Cursor moved to TkPos

Press  and move to set up Take out position

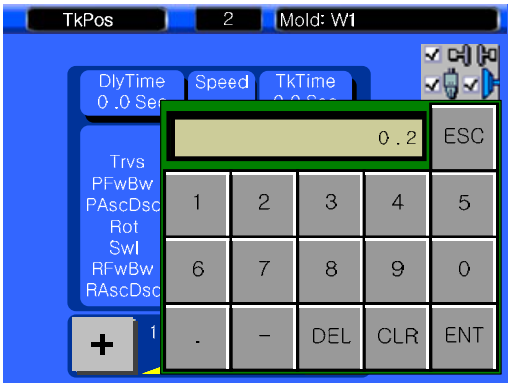
Take out position can be set up in Step Modification.



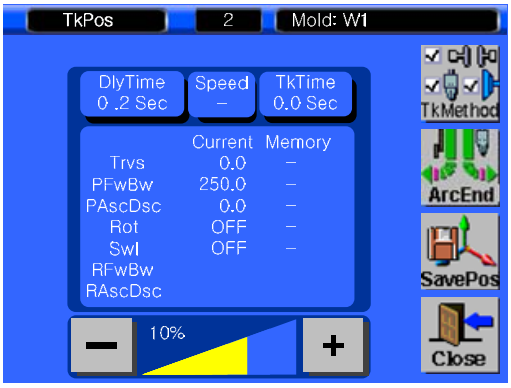
● STEP 15

[Set Delay Time to 0.2]

Press DlyTime 0 .0 Sec to have delay time after mold is open.



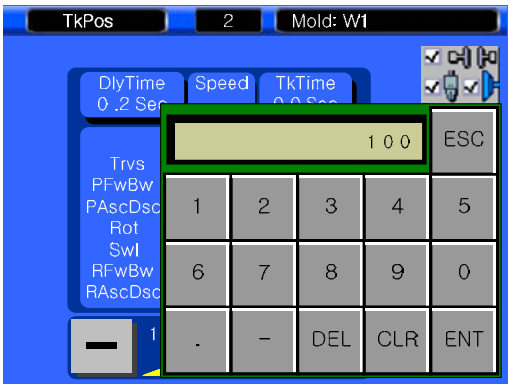
Press 0 . 2 and Press ENT to save.



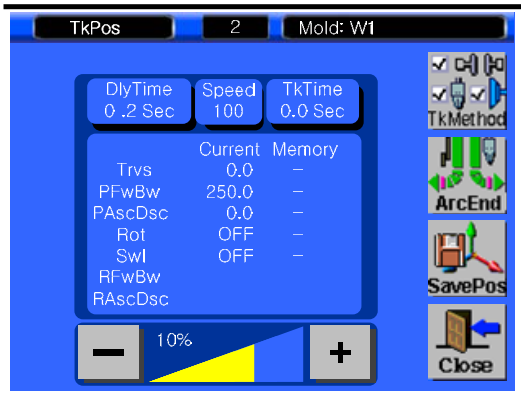
● STEP 16

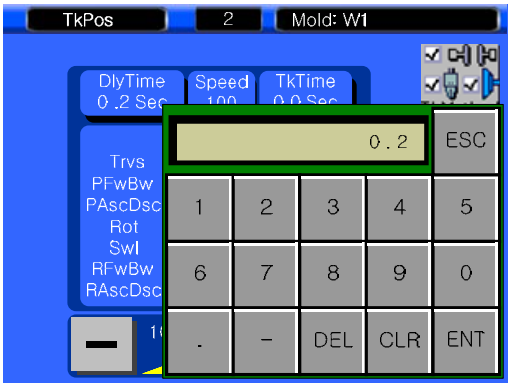
[Speed 100%]

Press Speed –



Press 1 0 0 to set speed 100%, Press ENT to save and close.



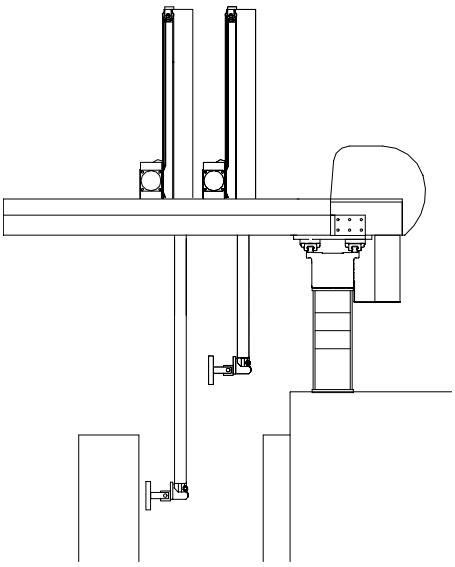


● STEP 17

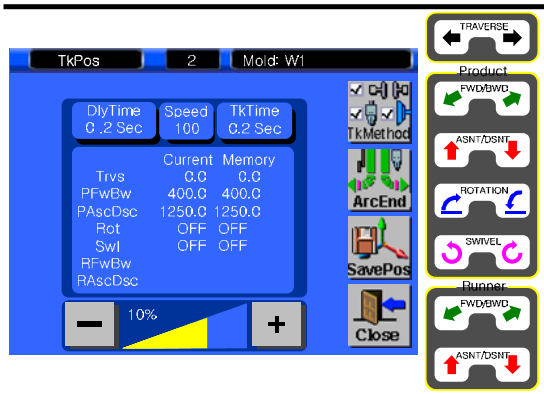
[Take out Time Delay]

Press TkTime 0.0 Sec to have delay time to take out operation.

Press 0 . 2 , Press ENT to close.



Position		
Each Axis	Waiting Position	Take out Position
Traverse	0 mm	0 mm
Kick	250 mm	400 mm
Up/Down	0 mm	1250 mm
Rotation	OFF	OFF



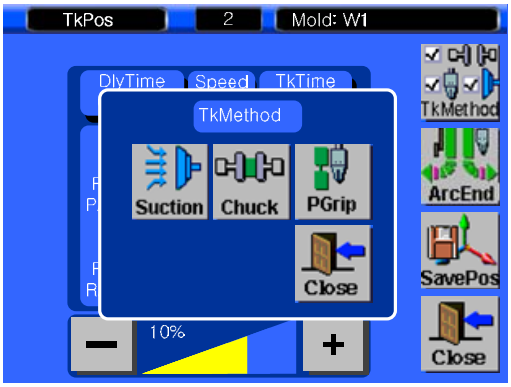
● STEP 18

[To set take our position for Traverse 0mm, Kick 100mm, Up/Down 1250mm, Rotation OFF]

Move robot arm with manual buttong until current position can be Traverse 0mm, Kick 100mm, Up/Down 1250mm, Rotation OFF

Press 

to save.



● STEP 19

[Take Out Method]

Press 

to displays take out method, press 

to operate suction,, press 

to close.

Press 

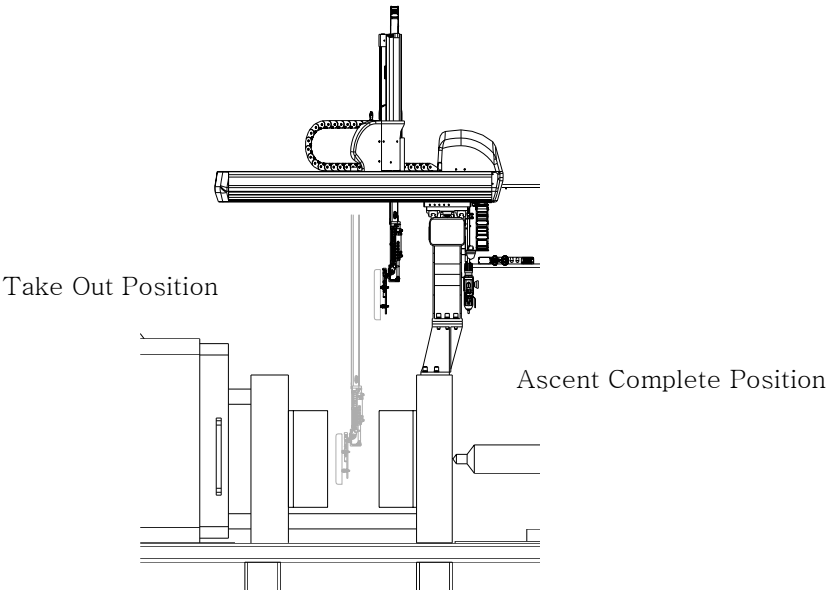
to save.

Reference

Take out cycle time delay time is from take out position and receive ejector forward complete signal to chuck operation.

Suction operation will be start after moving to take out position and chucking operation will be start after Take out cycle delay time complete

9 Ascent Position Setting (IMM Operate next cycle)



● **STEP 20**

Press 

, display [no setting].

Press 

to close.

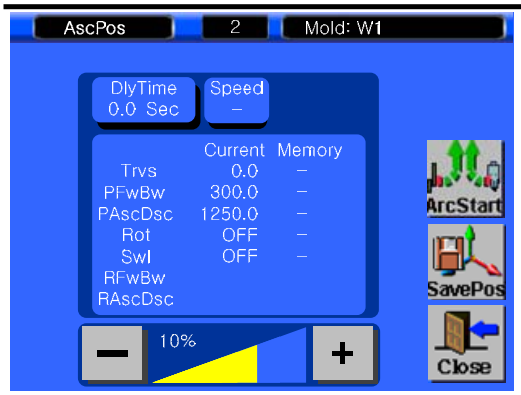
● **STEP 21**

Cursor located on AscPos..

Press 

to setting Ascend Position..

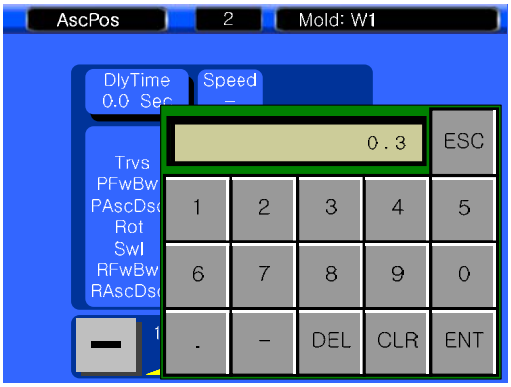
AscPos can be set up only in StepMod (Step Modification)



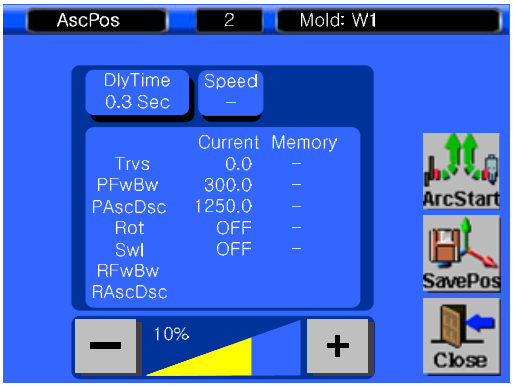
● STEP 22

[Delay time 0.3 Sec]

Press DlyTime 0.0 Sec to set delay time to up complete position.



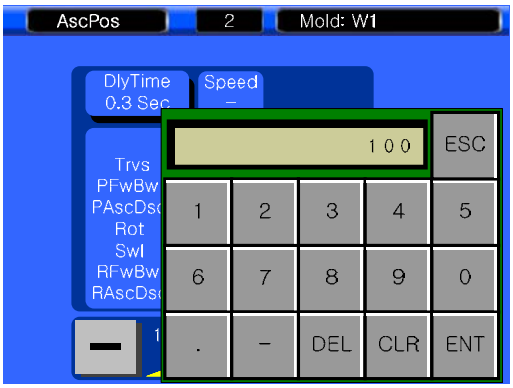
Press 0 . 3 and press ENT to save.



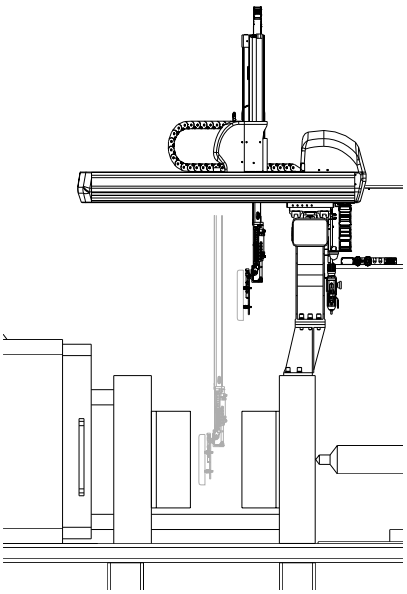
● STEP 23

[Speed setting 100%]

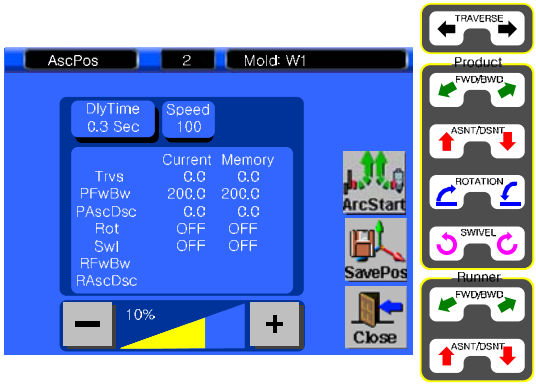
Speed setting to move up position, press Speed –.



Press 1 0 0 and press ENT to save and close.



Position		
Each Axis	Take out	Ascent
Traverse	0 mm	0 mm
Kick	300 mm	200 mm
Up/Down	1250 mm	0 mm
Rotation	OFF	OFF



● STEP 24

[Set Ascent Complete position to Traverse 0mm, Kick 0mm, Up/Down 0mm, Rotation OFF]

Press manual button to Traverse 0mm, Kick 0mm, Up/Down 0mm, Rotation OFF.

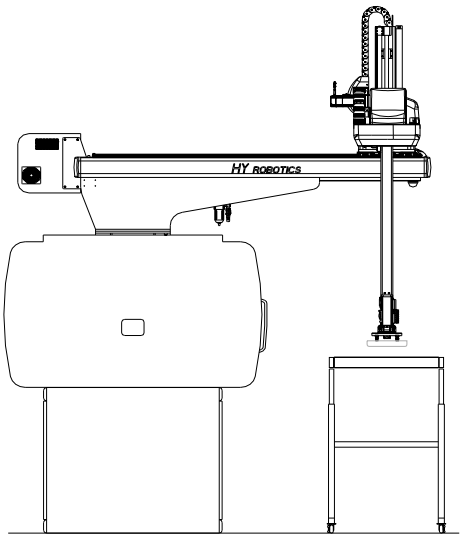
Press 

to save position

Press 

to close.

10 Release Position



Release Position

- **STEP 25**

Press 

display No Step info.

Press 

to close

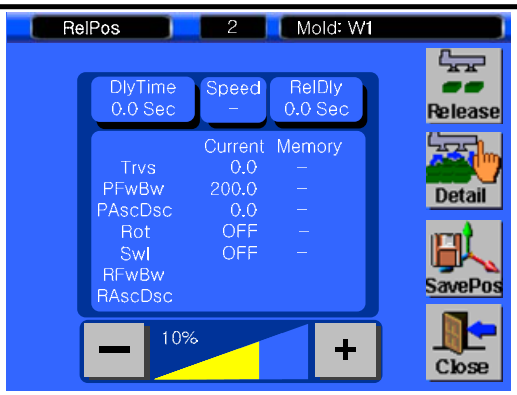
- **STEP 26**

Step cursor is located on RelPos (Release Position).

Press 

to move to setting screen.

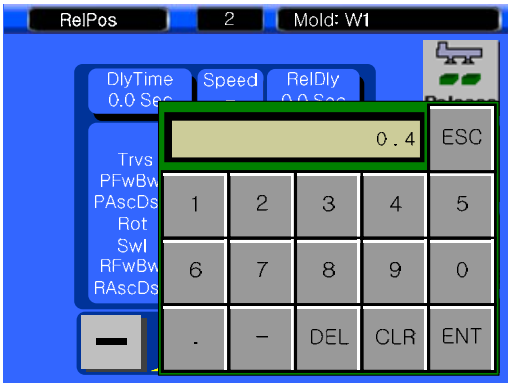
RelPoss can be set up only in StepMod (Step Modification)



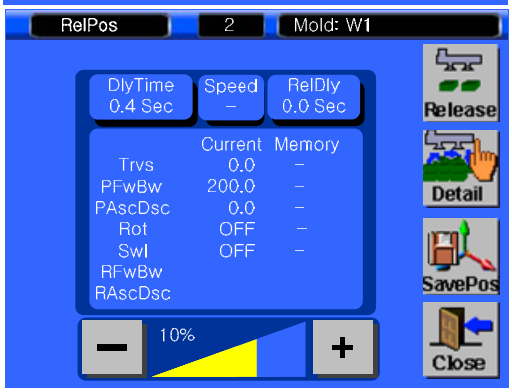
● STEP 27

[Delay Time 0.4 Sec]

To set delay time to move to release position, Press DlyTime 0 Sec .



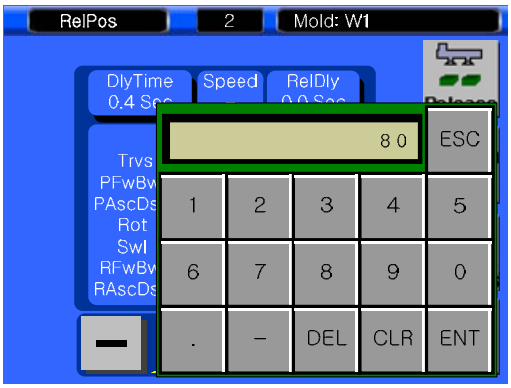
Press 0 . 4 and press ENT to save and close.



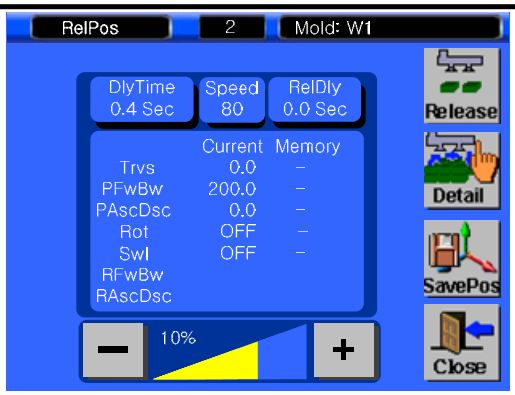
● STEP 28

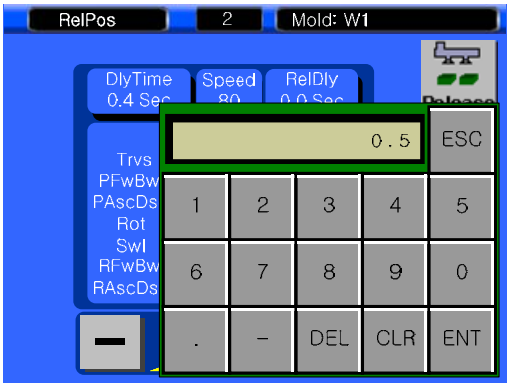
[Speed setting with 80%]

Press Speed –



Press 8 0 and Press ENT to save.



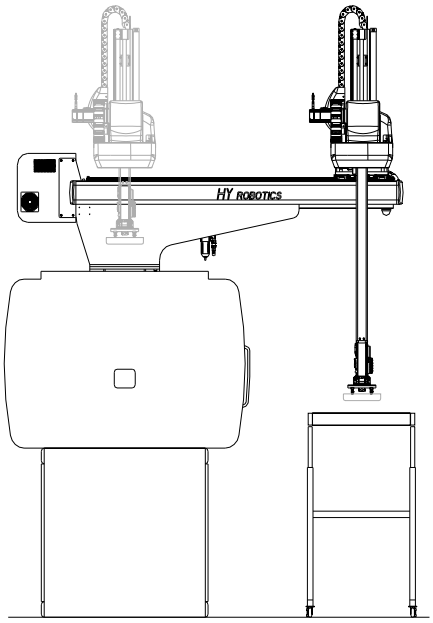


● STEP 29

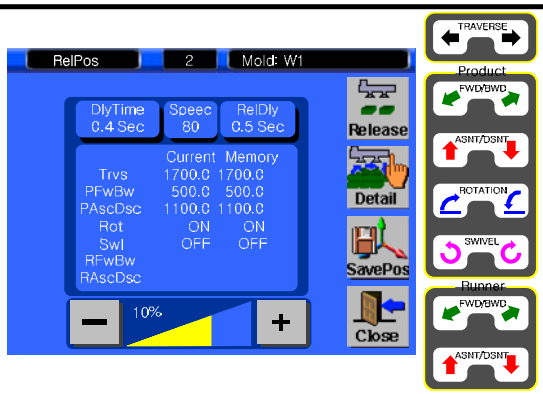
[Release Delay 0.5 Sec]

To set Release Delay time , press RelDly 0.0 Sec

Press 0 . 5 and press ENT to save.



Position		
Each Axis	Ascent Position	Release position
Traverse	0 mm	1700 mm
Kick	200 mm	500 mm
Up/Down	0 mm	1100 mm
Rotation	OFF	ON



● STEP 30

[To set release position to Traverse 1700mm, Kick 30mm, Up/Down 1100mm, Chuck Rotation ON]

Press manual button to move robot arm to Traverse 1700mm, Kick 30mm, Chuck Rotation ON
And then move robot arm Down 1100mm

Press 

to save.

Press 

to release all position

Press 

.

WARNING IN SAFETY ZONE, ROBOT ARM NEED TO UP COMPLETE TO MOVE TRAVERSE AXIS

11 Finish Step Operation

● STEP 31

Press 

to run robot go to next step.

After RelPos set up, press StepFw will finish one cycle and go back to first cycle.

● STEP 32

Run Step by Ste to confirm all position and setting is right.

Press 

will run step with slow speed.

will be changed to 

● STEP 32

During Step operation

Press 

will stop operation

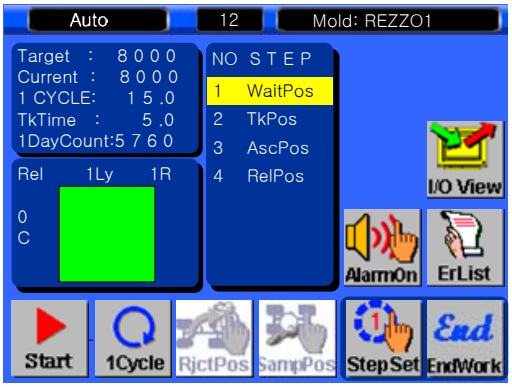
will be changed to 

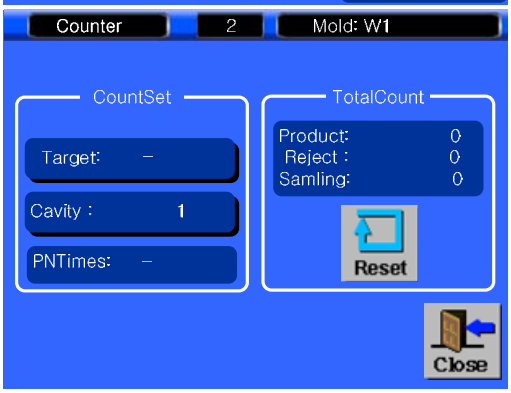
Press 

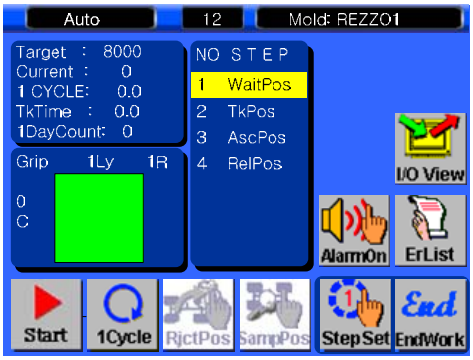
to run in Fully Automatic Mode

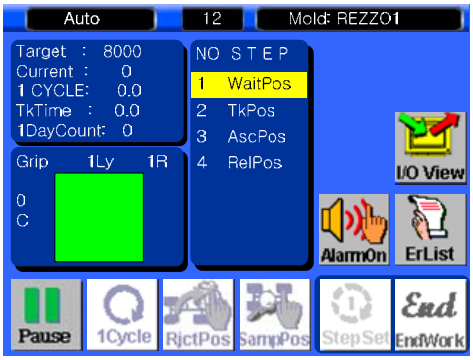
will not activate until finish the 1 step operation (after change mold, or reboot system)

12 Auto Runs



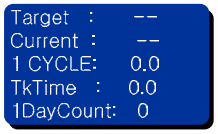






● STEP 33

To Set Target

Press 

move to setting screen.

[Set 8000]

Press 

, input 8000.

Press 

move back to Auto

● STEP 34

Press 

, start Automatic Operation

will be changed to 

● STEP 40

Press 

, robot stops, 

will be changed to 

.

Press 

to finish Job, move to Mold Manger screen

END OF LEVEL 2 PROGRAM