

BLOW MOLDING FRAME WORK

User Manual

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DESCRIPTION

This Manual is intended to be used by one who experienced on operating blow molding process.

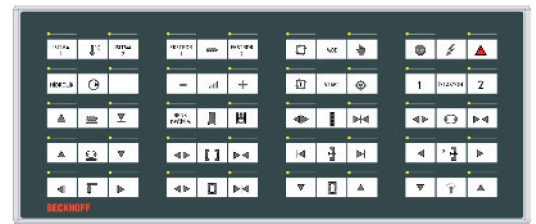
Blow Molding Frame Work has been developed by Otomotion result of many machine's comissioning and service bussiness.

It includes common issues so custom requirements may not be described in this user manual.

Our solution is generally two parts, main one is Control PC second one is Control Keypad, but some cases control button is used instead of Control Keypad.



CONTROL PC



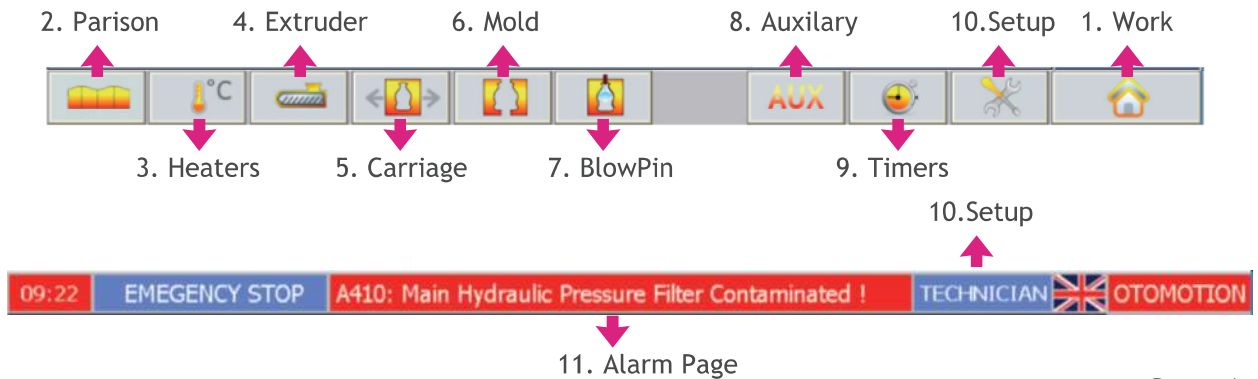
CONTROL KEYPAD

Control PC may be one complete PC or splitted in two parts, PC and Display.

Solution have following main sections pages. This pages may have also their sub pages.

They can be reached by tapping top/bottom Page Dialog bar, which is exist at top and bottom of the pages at the most of the pages.

- | | |
|------------------|--------------------|
| 1. Work Page | 8. Auxilaries Page |
| 2. Parison Page | 9. Timer Page |
| 3. Heaters Page | 10. Setup Page |
| 4. Extruder Page | 11. Alarm Page |
| 5. Carriage Page | |
| 6. Mold Page | |
| 7. BlowPin Page | |



1. WORK PAGE

Machine Mode Actual Alarm Info Logged in User Language

09:20 EMERGENCY STOP A068: Extruder 1 Raw Material RunOut! TECHNICIAN OTOMOTION

Actual Cycle	0.0	Reference Cycle	0
Calculated Cycle Time	0.0	Machine Cycle	0
Production Per Hour	0	Aux Cycle	0
Production Per Day	0		
Actual Pieces	0		

Actuals Side Bar

Cycle Info

	Before	Actual		Before	Actual
Carriaga Forw Go Time (s)	0.000	0.000	Up Deflashor Forw Go Time (s)	0.000	0.000
Carriaga Back Go Time (s)	0.000	0.000	Up Deflashor Back Go Time(s)	0.000	0.000
Mold Close Time (s)	0.000	0.000	Takeoff Hold Time(s)	0.000	0.000
Mold Open Time (s)	0.000	0.000	Takeoff Release Time(s)	0.000	0.000
Blowpin Down Go Time(s)	0.000	0.000	Cooling Flushing Down Time(s)	0.000	0.000
Blowpin Up Go Time(s)	0.000	0.000	Cooling Flushing Up Time(s)	0.000	0.000
			Punching Flushing Down Time(s)	0.000	0.000
			Punching Flushing Up Time(s)	0.000	0.000
			Needle Blowing Fw Time(s)	0.000	0.000
			Needle Blowing Bw Time(s)	0.000	0.000
			Side Cutter Fw Time(s)	0.000	0.000
			Side Cutter Bw Time(s)	0.000	0.000
			Side Scrap Gripper Fw Time(s)	0.000	0.000
			Side Scrap Gripper Bw Time(s)	0.000	0.000

Start waiting, Check Main Pump Start and Extruder Running
Start waiting, Check Main Pump Start and Extruder Running

CYCLE 0.0 sec.
0.0 sec.
WTC 1 rkt: 0.0 dgr: 0.0 %
EXTRUDER 0.0 Rpm. 0.0 Amp. 0.0 Bar. 0 °C.
PRODUCT QTY 0


Bottom Page Selection Dialog Bar

You can reach this page by tapping 1. Work  button wherever displayed.

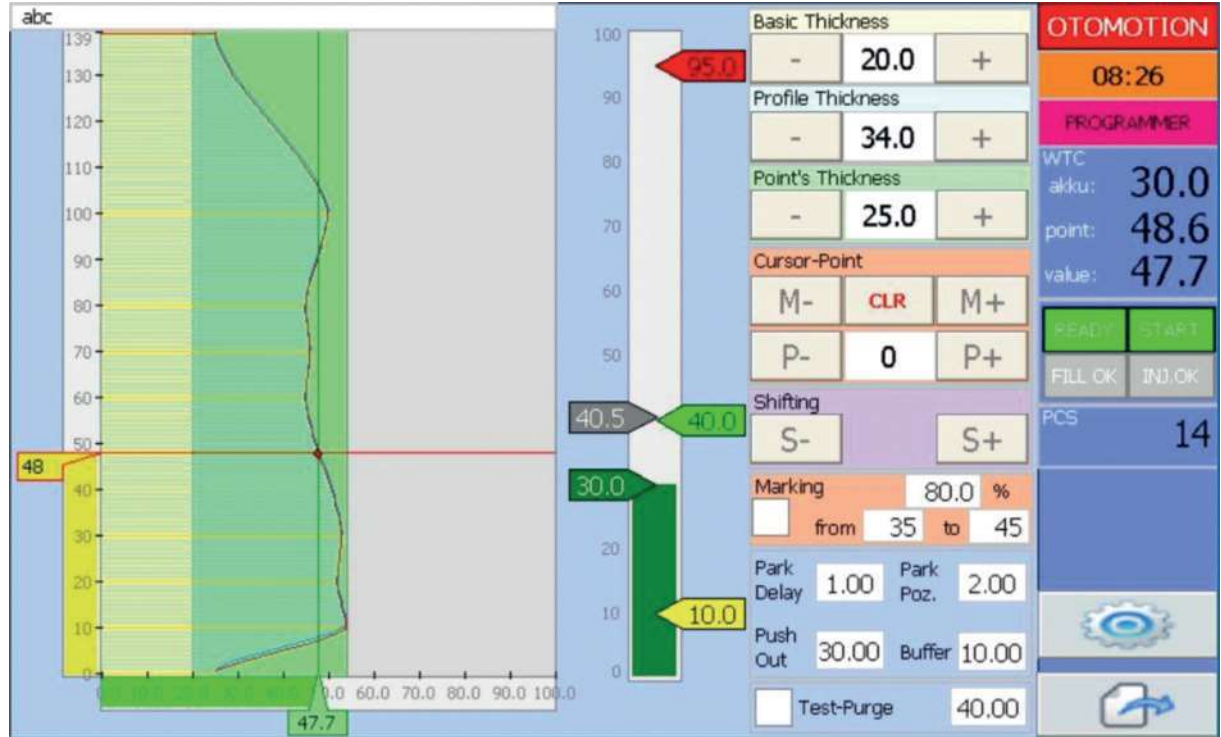
As you can understand this page present machine actual production and status information

As you request a remote support in case of a problem of the machine, our service stuff may ask you cycle info and active alarm by its Alarm Number (Axxx : Alarm Text) available on this page.

2. PARISON PAGE

You can reach this page by tapping 2. Parison  button wherever displayed. One of the types of parison available according to your machine construction.

- Accumulator Type Parison Page



- Extrusion Type Parison Page



Screen Shots may differs from yours.

Page: 3

You can adjust **Basic Thickness, Profile Thickness, Point's Thickness** by tapping + and - buttons or you can input directly on the keypad dialog by giving on value of it.

In order to Interpolate between two points, this points should have **Master Point** property,

This Master property can be given/removed by tapping **ADD** or **CLR** button to the point when the cursor on it.

You can scroll and select the point by tapping **P+** or **P-** or write directly number of the point on the keypad dialog by giving on value of it.

As soon as you change Point's Thickness value of a point, this point will be Master Point automatically.

You can scroll and select the Master Point by tapping **M+** or **M-** then change the **Point's Thickness** and also **Master Point** property easily.

You can shift the profile up and down by tapping **S+** and **S-** buttons.

You can also put a **mark** temporarily on the parison by giving **from & to** points to be marked between and %: Percentage of the mark thickness.

Test-Purge: When you check this option, the parison goes to specified value for maintenance purpose.

Injection Type Specific Parameters;

Park Delay: When Push out completed, then WTC start command released parison waits for the this park delay time at the last point value then goes to **Park Position** value.

Push Out: This volume is injected out, and parison profile is synchronised to this volume, It means that melt pushing out (0-PushOut) calls for (0-MaxPoint) value. For 7" Parison package MaxPoint is 139, this can be 179 or 199 for other sizes.

Buffer: This volume is intend to left in the akku (melt container).

Extrusion Type Specific Parameters;

Auto Time: When this is ticked, the parison triggered by means of for instance knife cut, the time between sequential two trigger signals is calculated automatically and sets **Parison Time** otherwise **Parison Time** will be static parameter which user can change.

Parison Time: Parison profile synchronised to this time, It means that melt pushing out (0-Parison Time) calls for (0-MaxPoint) value.

Auto Start: This parameter is for test purpose, to start the parison by without a trigger signal.

So far so good this was general how operate informations let us jump over WTC Setup Page for

Technician Level by taking user permission for minimum Technician then tapping



WTC SETUP PAGE (Technician User Level)

WTC 1 SETUP

Divergent / Convergent	<input type="checkbox"/>	
Movable Part Outer / Inner	<input type="checkbox"/>	
Interpolation Power	0.75	
Value Change Step	0.10	
AutoTime Tolerance Window	50	
Baloon Air Enable	<input type="checkbox"/>	
Profile Can Have Base	<input checked="" type="checkbox"/>	
OpenLoop (just Setpoint) / ClosedLoop	<input checked="" type="checkbox"/>	
Injection / Continuous Extrusion	<input checked="" type="checkbox"/>	
Volume Calculation by Injection Start	<input type="checkbox"/>	
Simulate Actual Position	<input type="checkbox"/>	
Maximum Stroke	100.00	

OTOMOTION

14:40

PROGRAMMER

CYCLE SET

10.00

WTC

time: 0.0

point: 0.0

value: 25.0

READY

START

PCS

15

Divergent / Convergent: Parison Die type needs to be selected according to your type. This parameter effects calibration minimum and maximum points automatically.

Movable Part Outer / Inner: Like Parison Die type this parameter also needs to be selected according to your movable part. This parameter effects calibration minimum and maximum points automatically too.

Interpolation Power: This parameter specifies interpolation power for transition between master points (for smooth S set it to 0.75) it is recommended, (for linear set it to 1.0).

Value Change Step: This parameter specifies increasing or decreasing step of a value when you adjust Basic Thickness, Profile Thickness, Point's Thickness by tapping + and - buttons

AutoTime Tolerance Window: This parameter specifies a window percentage when calculating AutoTime between sequential triggers, newly Calculated AutoTime should be greater than Minus Percentage and less than Plus Percentage of just before calculated AutoTime, otherwise newly calculated AutoTime is dismissed, the old AutoTime still valid.

Baloon Air Enable: When Extrusion type selected, parison tip is may closed by helping of a guillotine cut, then parison needs to be blown slightly while flowing through the Die before going to mold, this option gives you a possibility control an air valve according to parison points in 4 zones by helping of a digital output.

Profile Can Have Base: When this is selected, Basic Thickness is static and not updated as profile changed. This way profile can have it's own offset thickness between Basic Thickness and Profile Thickness. Otherwise every change of profile, the minimum point of profile is calculated and assumed Basic Thickness so Basic Thickness refreshed.

OpenLoop (just setpoint) / ClosedLoop: Some of the hydraulic valves has it's own control logic, and can do position control itself, this time it is enough to drive them by a reference setpoint. Select this option if your configuration so that. Otherwise ClosedLoop is done internally and PID parameters are active.



Screen Shots may differs from yours.


Page: 5

Injection / Continuous Extrusion: Two different work model should be selected first, according to this selection working scenario and related pages will be active.

Volume Calculation by Injection Start: This parameter is very useful when Injection mode, Accumulator level (volume) is captured in every injection start, and push out volume taken this volume to do so every injection synchronised by push out volume. INJ OK and FILL OK outputs also activated to help your machine automation handshaking.

Simulate Actual Position: When this is selected, Output Reference value is used as if feedback. It is mostly used for maintenance purpose.

Maximum Stroke: This parameter defines your maximum Parison Die gap distance. You can work 100% as default or you can give real measures XXmm. Visulation and some parameters will be changed and recalculated for this parameter. This parameter will affect calibration Maximum Engineered values also. So This parameter must be changed before the calibration process.

Let us jump over the WTC Calibration Page for Author Level by taking user permission for minimum Author then tapping 

WTC CALIBRATION (Author User Level)

WTC 1 CALIBRATION

OTOMOTION

SI11: Injection Position (%) 11		SI12: WTC Position (%) 12		SO06: WTC Reference (%) 6	
Raw Data Actual(AIN)	<input type="text" value="0.00"/> V	Raw Data Actual(AIN)	<input type="text" value="2.97"/> V	Actual Engineered Data	<input type="text" value="18.0"/> %
Raw Data Max.(AIN)	<input type="text" value="10.00"/> V	Raw Data Max.(AIN)	<input type="text" value="10.00"/> V	Engineered Data Max.	<input type="text" value="60.0"/> %
Raw Data Min.(AIN)	<input type="text" value="0.00"/> V	Raw Data Min.(AIN)	<input type="text" value="0.00"/> V	Engineered Data Min.	<input type="text" value="0.0"/> %
Engineered Data Max.	<input type="text" value="100.0"/> %	Engineered Data Max.	<input type="text" value="60.0"/> %	Raw Data Max.(AOUT)	<input type="text" value="10.00"/> V
Engineered Data Min.	<input type="text" value="0.0"/> %	Engineered Data Min.	<input type="text" value="0.0"/> %	Raw Data Min.(AOUT)	<input type="text" value="0.00"/> V
Actual Engineered Data	<input type="text" value="0.0"/> %	Actual Engineered Data	<input type="text" value="17.8"/> %	Raw Data Actual(AOUT)	<input type="text" value="3.00"/> V

!!! WARNINGS ON FULLY OPEN/CLOSE CALIBRATION
 1- This operation can break your die connections if something not suitable.
 2- Please select first proper Parison Die and Moveableparts model.
 3- Be sure that open button opens the die and close button closes so.
 4- Press OPEN until the Parison Die fully open and then release the button.
 5- Press CLOSE until the Parison Die fully closed and then release the button.
 6- After Calibration is done. Do not forget to release the Calibration Mode.
 Please Tap message box if you are aware of the warnings.

Gains

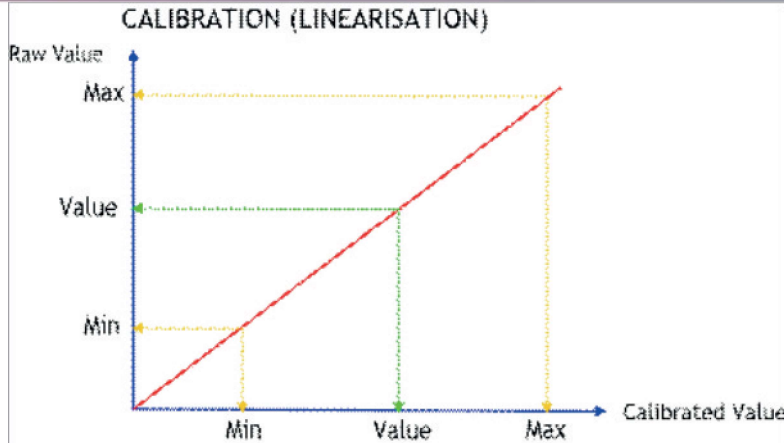
Our Analog Inputs and Outputs uses following calibration method,

Raw Value is analog voltage value, **Calibrated Value** is engineered and displayed value which is used in the program calculations.



Screen Shots may differs from yours.

Page: 6



Injection Position: Accumulator melt volume (if you work model Injection).

WTC Positon : Actual position of the Parison.

WTC Reference: Valve control voltage for bare valves or Setpoint Reference Controller for Closed Loop Valves.

! Please tap message box if you red warnings

Injection Position Calibration

! This operation should be carried out fully empty akku (melt container).

Please take the level sensor probe physically as if at the minimum level, at this point, write Injection Position's Actual Raw Data value into Raw Data Min value.

Please take the level sensor probe physically as if at the maximum level, at this point, write Injection Position's Actual Raw Data value into Raw Data Max value

☺ Now your Injection (Akku) Position is Calibrated.

Test if it is running properly at a few levels you put randomly.

WTC Position Calibration

Fully Open/Close Calibration Mode

Tap the Calibration button 

Now you are in fully open/close calibration method for WTC Position.



Screen Shots may differs from yours.

Page: 7

OTOMOTION

WTC 1 CALIBRATION

SI11: Injection Position (%) 11			SI12: WTC Position (%) 12			SO06: WTC Reference (%) 6		
Raw Data Actual(AIN)	0.00	V	Raw Data Actual(AIN)	0.00	V	Actual Engineered Data	39.9	%
Raw Data Max.(AIN)	10.00	V	Raw Data Max.(AIN)	10.00	V	Engineered Data Max.	60.0	%
Raw Data Min.(AIN)	0.00	V	Raw Data Min.(AIN)	0.00	V	Engineered Data Min.	0.0	%
Engineered Data Max.	100.0	%	Engineered Data Max.	60.0	%	Raw Data Max.(AOUT)	10.00	V
Engineered Data Min.	0.0	%	Engineered Data Min.	0.0	%	Raw Data Min.(AOUT)	0.00	V
Actual Engineered Data	0.0	%	Actual Engineered Data	0.0	%	Raw Data Actual(AOUT)	6.66	V

☐ Test-Purge 48.00

Closed Loop Gains

Kp	2.00
Ki	0.02
Kd	0.01

Adjusting the WTC Position in Closed Loop

Please Remove the Parison Die in order to prevent any breakage of it by means of oscillation or forcing the limits. Normally this should not be any problem, but some parison hydraulics more than enough strong or some Parison Dies less than enough strong so Parison Die can get broken as touches and forces at the limits.

!!! So Remove the Parison Die, You do not take a risk.

- > **Please Select proper Parison Die Model and Movable Part model which you have.**
- > **Please check OPEN and CLOSE button works by shortly pressed and seeing the Die movement. Be sure that OPEN button Opens the Die and CLOSE button closes the Die.** If not please change the valve connection polarity.

Parison valve needs 0 to +10V reference for let say + opening direction, 0 to -10V reference for - closing direction commonly.

- > You will give +2.5V for + direction as long as by tapping OPEN button, and see the Die **fully opened and stucked** then release the button. Now you have set **WTC Position's Raw Data Max** by Actual Raw Data value.
- > You will give -2.5V for - direction as long as by tapping CLOSE button, and see the Die **fully closed and stucked** then release the button. Now you have set **WTC Position's Raw Data Min**, by Actual Raw Data value.

☺ Now your WTC Position is Calibrated.

!!! Do not forget to exit fully open/close calibration method by tapping button.



Screen Shots may differs from yours.

Page: 8

Adjusting the WTC Position in Open Loop

- > You can follow same steps for closed loop. But since the parison valve expect only position reference this time, you need to try and find correct reference voltage for **fully open** Die then at this point you have set **WTC Position's Raw Data Max** by Actual Raw Data value by releasing OPEN button.

Keep this voltage value found for setting WTC Reference's Raw Data Max.

- > Try and find correct reference voltage for **fully closed** Die, at this point you have set **WTC Position's Raw Data Min** by Actual Raw Data value by releasing CLOSE button.

Keep this voltage value found for setting WTC Reference's Raw Data Min.

😊 Now your WTC Position is Calibrated.

!!! Do not forget to exit fully open/close calibration method by tapping  button.

WTC Reference Calibration

Engineered Data Max and Engineered Data Min parameter is already defined by Maximum Stroke parameter. It is nothing to do more.

Adjusting the WTC Reference in Closed Loop

Raw Data Max= 10.00V and Raw Data Min= -10.00V is okay if you want parison valve as fast possible. That is all for closed loop.

Adjusting the WTC Reference in Open Loop

While adjusting WTC position in Open Loop you already found and kept WTC Reference's Raw Data Max and Raw Data Min parameter.

😊 Now your WTC Refence is Calibrated.

!!! Do not forget to exit fully open/close calibration method by tapping  button.

Closed Loop Gain Adjustment


When calibrations has done, the last step is Closed Loop Gains Kp, Ki, Kd should be tuned for good control.

Please set Kp=0.1 Ki=0.01, Kd=0.01 for the begining and select Test-Purge and set Test Position=%50 of Max Stroke (you can do it easily by tapping %50 button), and increase Kp by step of 0.1 starting from Kp= 0.1 as long as see the oscillation on the Parison Die, find the maximum value satisfies without oscillation. Then you can increase Ki by step of 0.1 and find minimum value satisfies without swing. Leave Kd=0.01

😊 It Is OKAY.

You can test the performance of the PID by changing Test Position (you can do it easily by tapping %20 %50 %80 buttons or set it whatever) and watching the WTC Actual Position following this changes.

3. HEATERS PAGE

You can reach this page by tapping 3. Heaters  button wherever displayed.



Your machine heaters mnemonic is shown at this page according to your construction for your better understanding.

Heater



- ➔ Actual Temperature of the Zone
- ➔ Target Temperature of the Zone
- ➔ Actual Output Power of the Zone
- ➔ Number of the Zone (Red crossed when disabled)



- ➔ Barrel Heating turn ON/OFF (This also possible by KeyPad/Button)
- ➔ Head Heating turn ON/OF (This also possible by KeyPad/Button)
- ➔ All Target Temperatures enabled set to StandBy Temperature.
- ➔ All Target Temperatures enabled are inc/decremented by a X value.



Screen Shots may differs from yours.

Page: 10

You can reach this page by tapping  button from the 3.Heaters Page.

HEATERS SETUP PAGE (Technician User Level)

13:49
EMERGENCY STOP
A403:Hydr Safety Gate , System Cant Go Low Pressure !
PROGRAMMER
OTOMOTION

Main Extruder

	Zone 24	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Zone Enable:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Temp High:	15.0 °C	15.0 °C	15.0 °C	15.0 °C	15.0 °C	15.0 °C
Temp Low:	15.0 °C	15.0 °C	15.0 °C	15.0 °C	15.0 °C	15.0 °C
Fan Enable:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fan Start:	2.0 °C	5.0 °C	5.0 °C	5.0 °C	5.0 °C	5.0 °C
StandBy SP:	30 °C	150 °C	150 °C	150 °C	150 °C	150 °C
Kp:	5.85	4.37	3.39	3.80	3.61	2.63
Td:	T#9m30s9ms	T#2m56s154ms	T#5m46s767ms	T#5m28s753ms	T#5m26s178ms	T#18m7s153ms
Tv:	T#23s940ms	T#7s398ms	T#14s564ms	T#13s808ms	T#13s699ms	T#45s660ms
Tune:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Error:	0	0	0	0	0	0

Maximum Temperature: 320

Minimum Temperature: 0

Melt Temperature Tolerance: 5

Feeding Temperature Tolerance: 5

CYCLE

0.0 sec.

0.0 sec.

WTC 1

rkt: 0

dgr: -6.4 %

EXTRUDER

0.5 Rpm.

0.0 Amp.

0.0 Bar.

0 °C.

Baloon Air

Start Stop

120 150

0 0

0 0

0 0

PRODUCT QTY

0

Zone Enable: Heating Enabled and any relation to this zone temperature is established.

Temp High: One of the temperatures go above the High Temp, mains for the heaters is cut off.

Temp Low: One of the temperatures go below the High Temp, permission for extruder run is cut off.

Fan Enable and Start: If enabled and actual temperature is higher than (target+start) temperature then fan start running.

StandBy SP: This overrides to all target temperatures as long as standby function activated. This is usefull when the machine waits longer at not automatic state, but Heaters ON

Tune: Turn ON/OFF autotune function which is very usefull for better temperature regulation. Instead of adjusting Kp, Tn, Td, Tv parameters manually.



Before turning ON the autotune function, zone should be enabled, waited for cool down to ¼ of target temperature, then Tune ON as soon as heaters turned ON. If many zones need tuning it is better Tune them together.

Maximum Temperature: User can not set above this temperature as the target temperature.

Minimum Temperature: User can not set below this temperature as the target temperature.

Melt Temperature Tolerance: Melt temperature is a safety for Extruder but on the other hand it gets stopped the Extruder frequently when this parameter is not set properly.


Feeding Zone Temperature Tolerance: Feeding zone generally cooled down while the other zones heated up. Generally a valve is used for cooling down process and it is basic ON/OFF control instead of PID. This tolerance value is used as dead band of valve control. You can find a right value by testing.

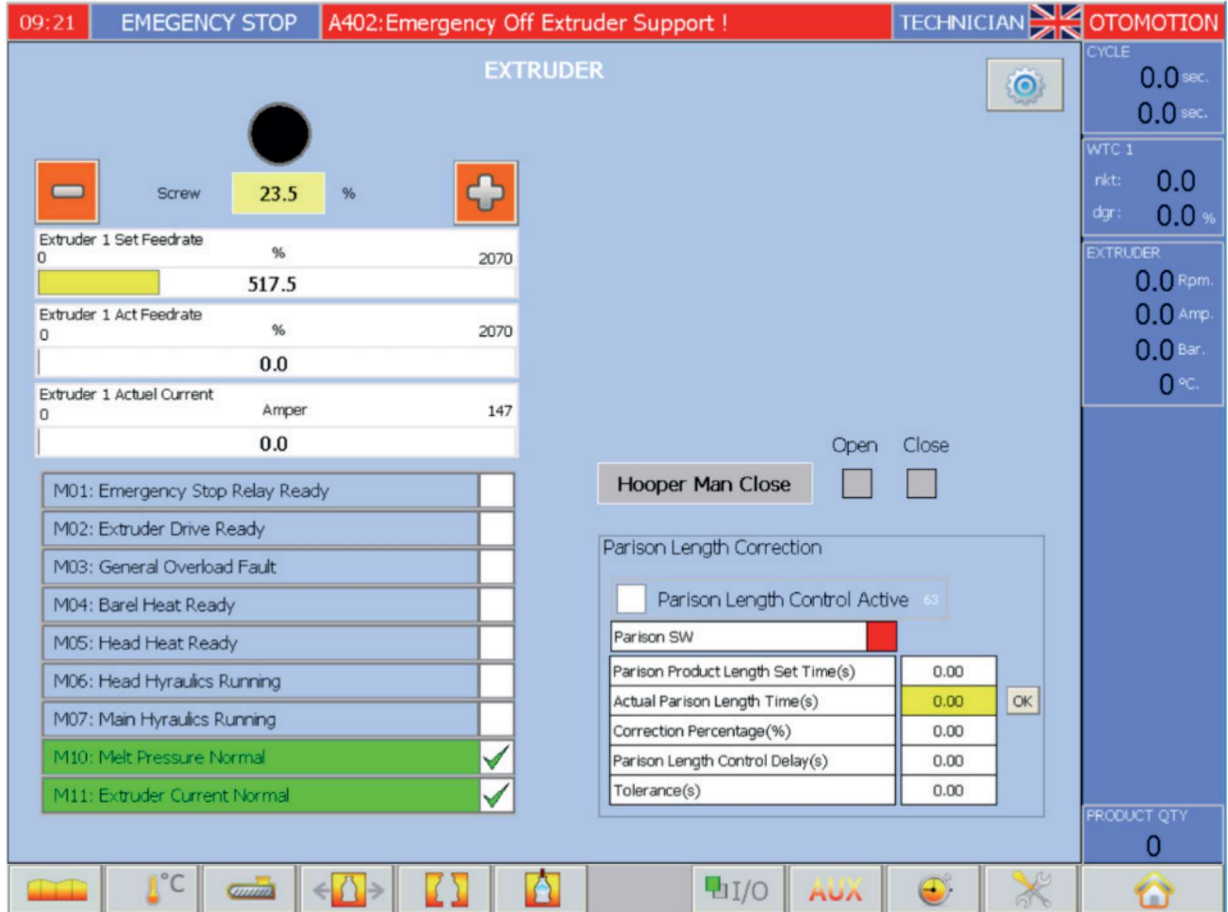


Screen Shots may differs from yours.

Page: 11

4. EXTRUDER PAGE

You can reach this page by tapping 4. Extruder  button wherever displayed.



Extruder page has user friendly controls for adjusting-diagnostic screw speed, and diagnostic for extruder load as current consumption.

Beside those you can check prerequisites for Extruder run, Hooper Open/Close and Parison length correction function.

 → Increase/Decrease of Extruder Speed (this also possible from keypad/buttons)

Parison length correction function is useful when cycle of machine changes (due to hydraulic oil viscosity/heat changes) or melt flow changes (due to raw material and steady state heating) at long duration production, it tolerates those changes and play with extruder speed, so It is better than operator intervention frequently.



Screen Shots may differs from yours.

Page: 12

You can reach this page by tapping  button from the 4.Extruder Page.

EXTRUDER SETUP PAGE (Technician User Level)

13:48		EMERGENCY STOP		A266:Left BlowPin Transducer Error		PROGRAMMER		OTOMOTION		
Main Extruder Current (Amp.)			Main Extruder Speed (Rpm.)			Main Extruder Speed Reference(Rpm.)			CYCLE	
Raw Data (AIN)	0.00	V	Raw Data (AIN)	0.00	V	Actual Engineered Data	20.0	%	0.0 sec.	0.0 sec.
Raw Data Max. (AIN)	10.00	V	Raw Data Max. (AIN)	10.00	V	Engineered Data Max.	2070.0	%	WTC 1	
Raw Data Min. (AIN)	0.00	V	Raw Data Min. (AIN)	-0.05	V	Engineered Data Min.	0.0	%	rkt:	0
Engineered Data Max.	147.0	%	Engineered Data Max.	2070.0	%	Raw Data Max. (AOUT)	10.00	V	dgr:	-6.4 %
Engineered Data Min.	0.0	%	Engineered Data Min.	0.0	%	Raw Data Min. (AOUT)	0.00	V	EXTRUDER	
Actual Engineered Data	0.0	%	Actual Engineered Data	10.3	%	Raw Data (AOUT)	0.10	V	0.5 Rpm.	
Main Extruder Current Compare Tresh	0.0		Ext. 1 Reduction Ratio	0.0454		Ext. 1 Start Speed	20.0		0.0 Amp.	
8.0 Inrange	120.0					Ext. 1 Normal Speed Delay(s)	3.0		0.0 Bar.	
Extruder Stop Delay(s)	30					Ext. 1 Speed Ramp(s)	5.0		0 °C.	
Hooper Stop Delay(s)	2									
									Baloon Air	
									Start	Stop
									120	150
									0	0
									0	0
									0	0
									PRODUCT QTY	
									0	

You can calibrate Extruder Current Actual, Speed Actual, and Speed Reference and Melt Pressure at this page.

Calibration is same as described at Page: 7

You also can put current treshold and melt pressure treshold for stopping extruder to prevent unwanted situations.

Ext. 1 Reduction Ratio: Is the coefficient for turning extruder speed into screw speed.

Ext. 1 Start Speed: Extruder starts running with base speed.

Ext. 1 Normal Speed Delay: Extruder runs at start speed as long as this time then goes up for production normal speed.

Ext. 1 Speed Ramp: This ramp time is used for every extruder speed change.


Ext. 1 Stop Delay: In same requirements Extruder stops end of this delay time for emptying barrel.

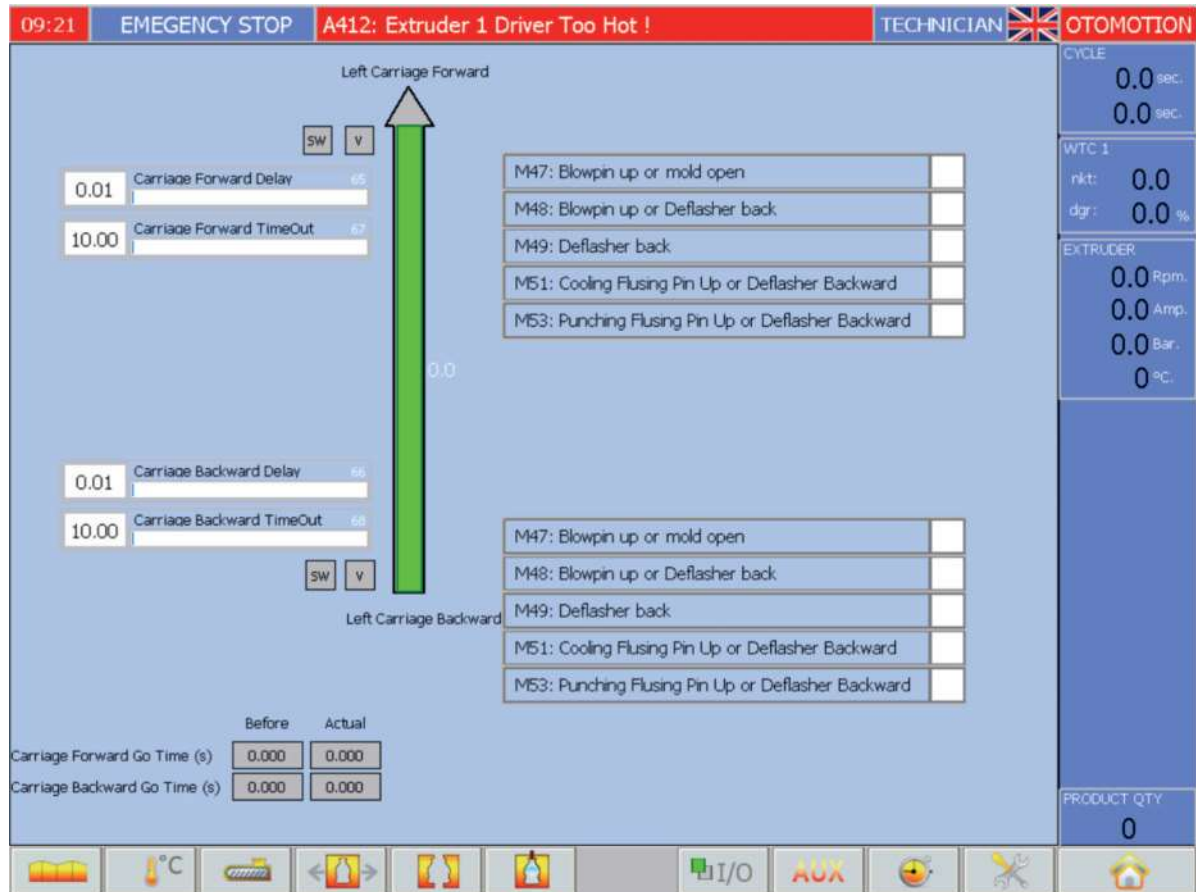


Screen Shots may differs from yours.

Page: 13

5. CARRIAGE PAGE

You can reach this page by tapping 5. Carriage  button wherever displayed.



Carriage page has user friendly controls for adjusting-diagnostic carriage related parameters and signals which are position transducers, limit switches and timers. You also adjust carriage's motion profile if it is available.

Beside those you can check prerequisites for Carriage Movement.

Delay Time: You can change this parameter to postpone movement as long as this delay time when command of forward/backward

TimeOut Time: When forward/backward command applied to the carriage and can not be taken feedback about target reached along with the TimeOut time, a Movement TimeOut Allarm triggered.



Delay Time and TimeOut Time behavior is the same for all movements.



Screen Shots may differs from yours.

Page: 14

You can reach this page by tapping  button from the 5.Carriage Page.


CARRIAGE SETUP PAGE (Technician User Level)

15:22

EMERGENCY STOP

A412: Extruder 1 Driver Too Hot !

PROGRAMMER



OTOMOTION

SW

V

Cariage Position (mm.)

Raw Data (AIN)

Raw Data Max.(AIN)

Raw Data Min.(AIN)

Engineered Data Max.

Engineered Data Min.

Actuel Engineered Data

0.00

10.00

-10.00

100.0

-100.0

0.0

V

V

V

%

%


%

0.0

SW1

SW2

V



CYCLE

0.0 sec.

0.0 sec.

WTC 1

rlt: 0

dgr: -6.4 %

EXTRUDER

0.5 Rpm.

0.0 Amp.

0.0 Bar.

0 °C.

Baloon Air

Start

Stop

120

150

0

0

0

0

PRODUCT QTY

0



You can calibrate Carriage Position at this page.

Calibration is same as described at Page: 7



Screen Shots may differs from yours.

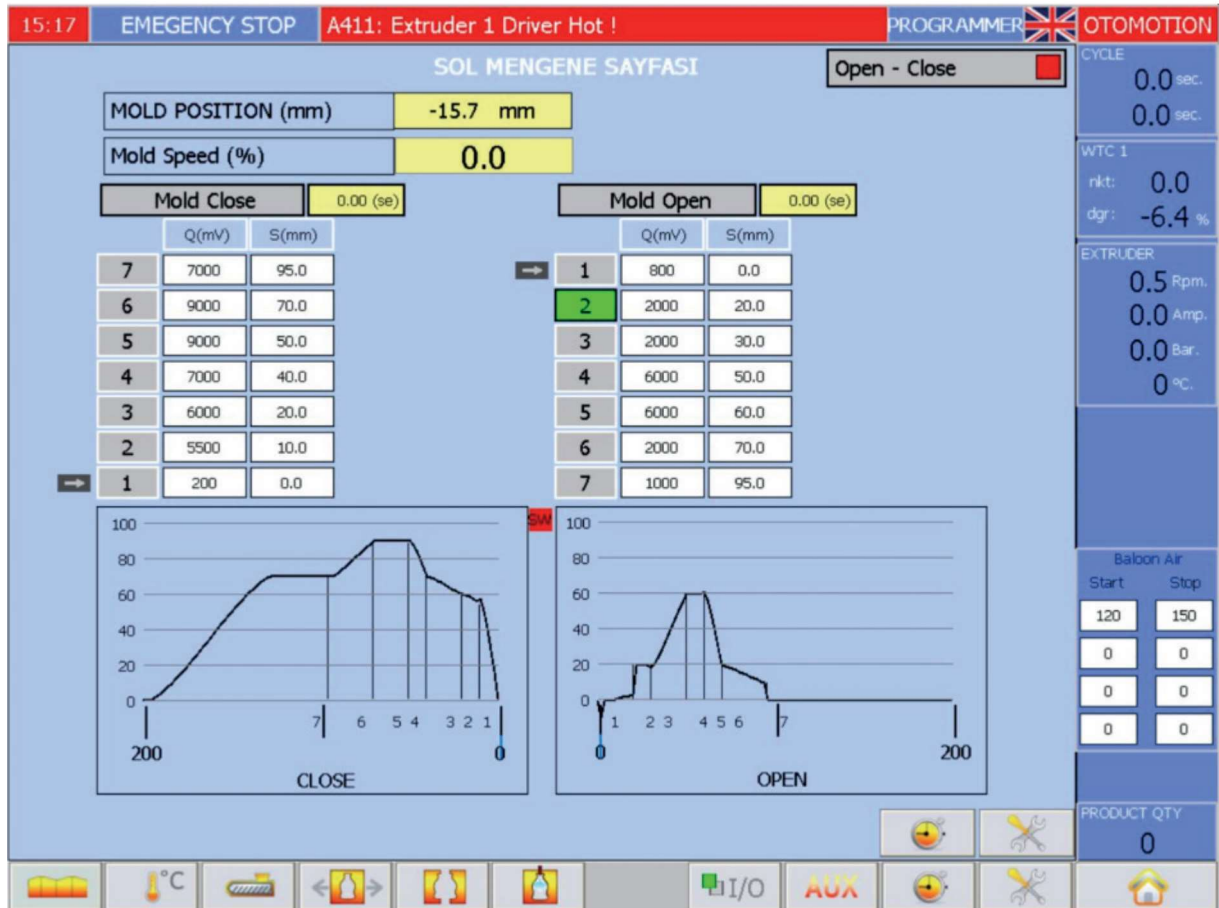
Page: 15

6. MOLD PAGE

You can reach this page by tapping 6. Mold wherever displayed.



button



Mold page has user friendly controls for adjusting-diagnostic mold related parameters and signals which are position transducers, limit switches and timers. You also adjust mold's motion profile if it is available.

Beside those you can check prerequisites for Mold Movement.

Delay Time: You can change this parameter to postpone movement as long as this delay time when command of close/open

TimeOut Time: When close/open command applied to the mold and can not be taken feedback about target reached along with the TimeOut time, a Movement TimeOut Allarm triggered.



Delay Time and TimeOut Time behavior is the same for all movements.



Screen Shots may differs from yours.

Page: 16

OTOMOTION | BLOW MOLDING FRAME WORK

You can reach this page by tapping  button from the 6.Mold Page.

MOLD SETUP PAGE (Technician User Level)

15:18

EMERGENCY STOP

A407:Power Supply 24 DC Fault !

PROGRAMMER

OTOMOTION

SOL MENGENE AYAR SAYFASI

Left Mold Close Position (mm.)

Raw Data (AIN) 0.00 V

Raw Data Max.(AIN) 9.51 V

Raw Data Min.(AIN) 1.29 V

Engineered Data Max. 100.0 %

Engineered Data Min. 0.0 %

Actual Engineered Data -15.7 %

Close Point Number 7

Open Point Number 7

PreOpen Point 2

Compress Speed (mV) 50

Minimum Speed Ref (mV) 5

Minimum Speed Limit (mm/se) 5

Kalip Kilit Pozisyonu 0.00

Kalip Kilit Referansi 0.00

Kalip Açık Pos OK 12.00

(DO WHEN MOLD COMLETLY CLOSE !)

Reset Mold Position

OFFSET 0.494777858

mm. DEGER -15.7

Mold L.Transducer Min-Max Limit Treshol 0

Mold L.Transducer Max Value Change Tre 5000

Mold Pos Transducer Actual Value Change 0

Channel Current(A) 2.00

Max Coil Current(A) 0.70

Open Percent of Min(%) 5.00

Open Percent of Max(%) 100.00

Close Percent of Min(%) 5.00

Close Percent of Max(%) 100.00

CYCLE 0.0 sec.

0.0 sec.

WTC 1

rkt: 0

dgr: -6.4 %

EXTRUDER

0.5 Rpm.

0.0 Amp.

0.0 Bar.

0 °C.

Baloon Air

Start Stop

120 150

0 0

0 0

0 0

PRODUCT QTY

0

You can calibrate Mold Position at this page.

Calibration is same as described at Page: 7



Screen Shots may differs from yours.

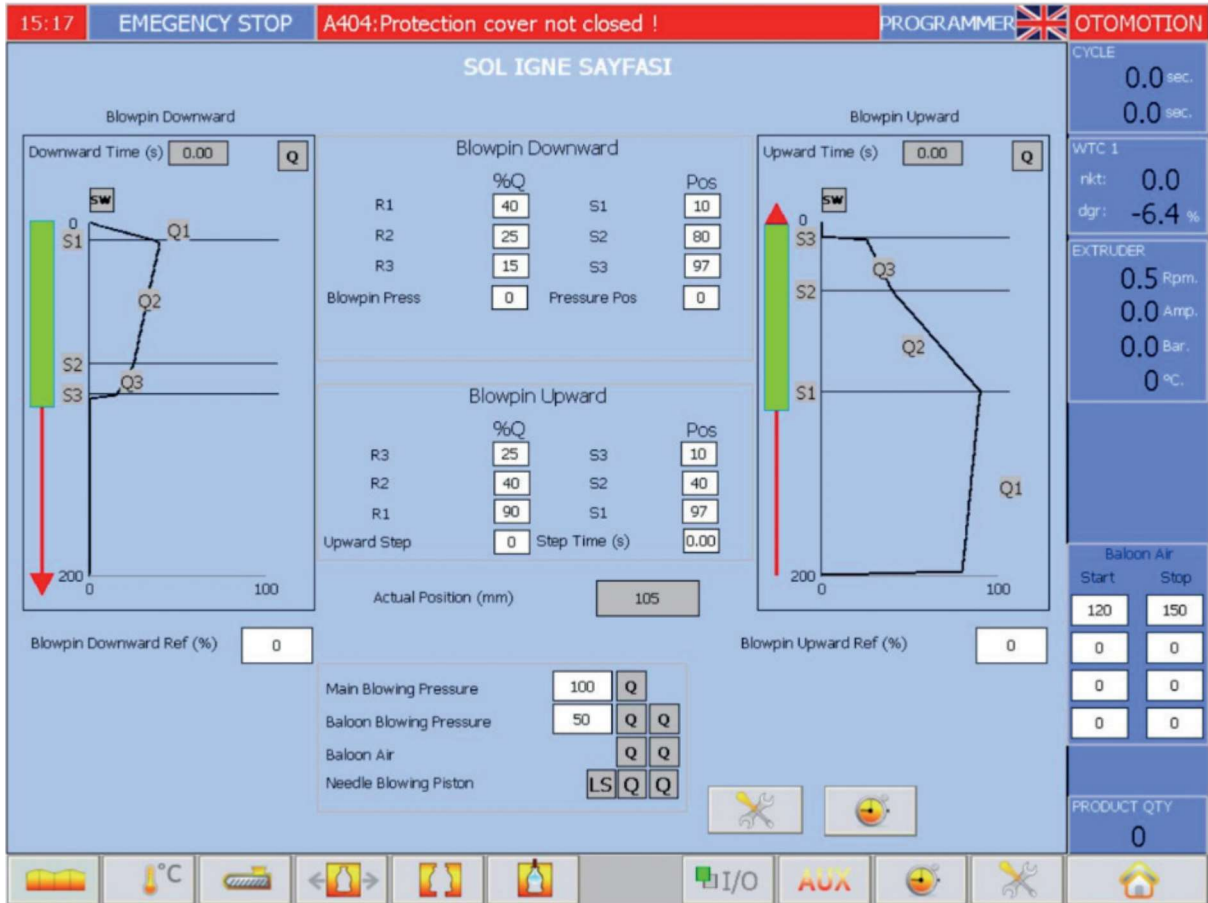
Page: 17

7. BLOW PIN PAGE

You can reach this page by tapping 7. BlowPin wherever displayed.



button



BlowPin page has user friendly controls for adjusting-diagnostic BlowPin related parameters and signals which are position transducers, limit switches and timers. You also adjust BlowPin's motion profile if it is available.

Beside those you can check prerequisites for BlowPin Movement.

Delay Time: You can change this parameter to postpone movement as long as this delay time when command of Up/Down

TimeOut Time: When Up/Down command applied to the BlowPin and can not be taken feedback about target reached along with the TimeOut time, a Movement TimeOut Allarm triggered.



Delay Time and TimeOut Time behavior is the same for all movements.



Screen Shots may differs from yours.

Page: 18

You can reach this page by tapping  button from the 7. BlowPin Page.

BLOWPIN SETUP PAGE (Technician User Level)

15:17

EMERGENCY STOP

A040: Head Zones Low Temp. !

PROGRAMMER

OTOMOTION

IGNE AYAR SAYFASI

Left Blowpin

Proportional Card Curr(A) 2.00

Nominal Coil Current(A) 2.00

Min Coil Current(A) 0.00

Blowpin Down position should be greater then upper position

Left Blowpin Position (mm.)

Raw Data (AIN) 0.00 V

Raw Data Max.(AIN) 0.40 V

Raw Data Min.(AIN) 8.83 V

Engineered Data Max. 100.0 %

Engineered Data Min. 0.0 %

Actual Engineered Data 104.7 %

Feedback Broken AI 100

Max Feedback Val Change 400

Manual Hold 0

Blowpins Valve Off Delay(s) 0.00

Blowpin Pos OK Deger 5.00

CYCLE

0.0 sec.

0.0 sec.

WTC 1

nkt: 0

dgr: -6.4 %

EXTRUDER

0.5 Rpm.

0.0 Amp.

0.0 Bar.

0 °C.

Baloon Air

Start Stop

120 150

0 0

0 0

0 0

PRODUCT QTY

0

You can calibrate BlowPin Position at this page.


Calibration is same as described at Page: 7

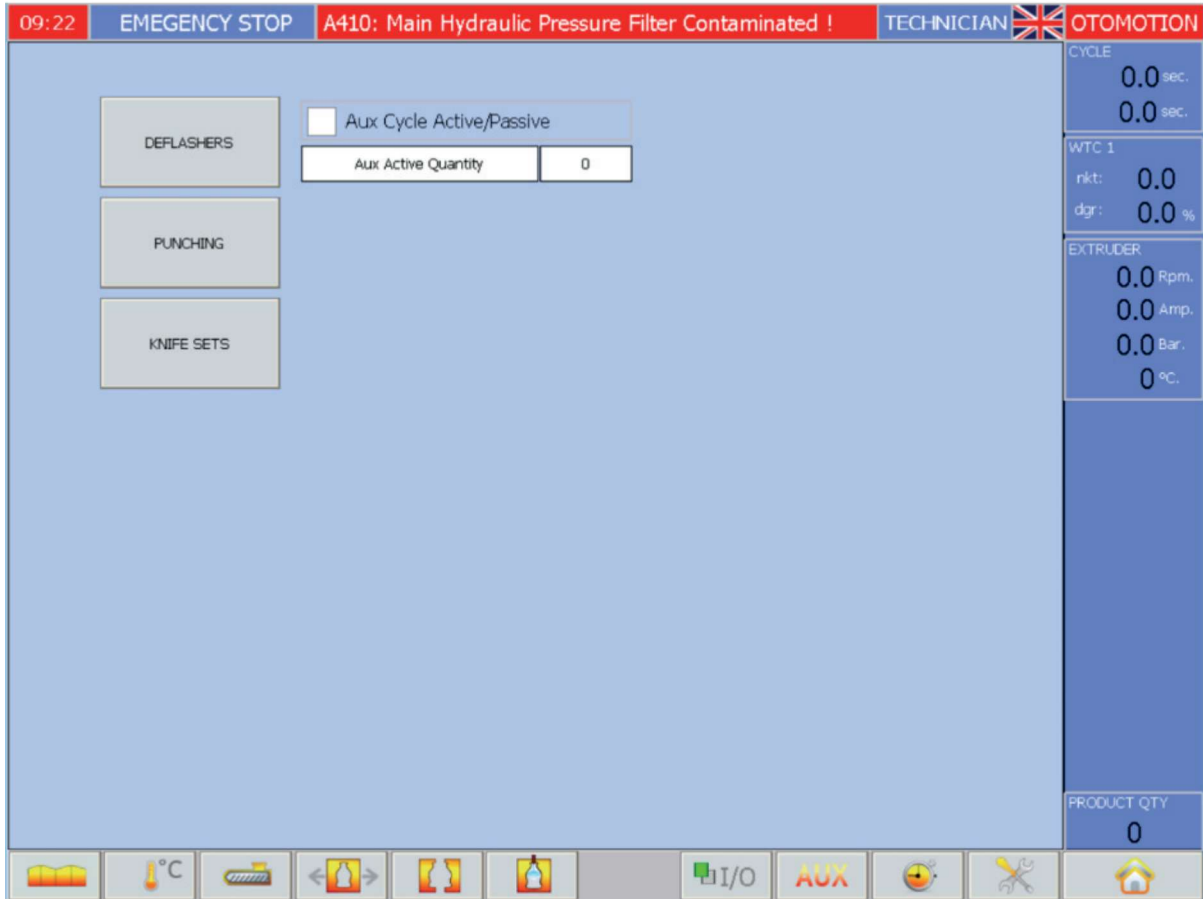


Screen Shots may differs from yours.

Page: 19

8. AUXILIARIES PAGE

You can reach this page by tapping 8. Auxiliaries  button wherever displayed.



Auxiliaries page has helper organs of the machines such as punches, needles, deflashers settings and their sensors and valves status.

Settings generally timers setting and option setting.

Delay Time: You can change this parameter to postpone movement as long as this delay time when command of Go/Back

TimeOut Time: When Go/Back command applied to the organ and can not be taken feedback about target reached along with the TimeOut time, a Movement TimeOut Allarm triggered.



Delay Time and TimeOut Time behavior is the same for all movements.



Screen Shots may differs from yours.

Page: 20

9. TIMERS PAGE

You can reach this page by tapping 9. Timers wherever displayed.



button

08:44
EMEGENCY STOP
A404:Protection cover not closed !
OPERATOR
OTOMOTION

3.00
Group First Cycle Delay
30

15.00
First Product Wait
1

0.01
PreBlowing Delay
5

2.00
PreBlowing Time
6

1.00
Blowing Delay
7

35.00
Cycle WatchDog Timer
4

20.00
Blowing Time
8

1.00
DeAeration Time
9

99.00
Refresh Air Delay
11

99.00
Refresh Air Time
12

0.0
Cycle
sec.

0.0
WTC 1
sec.

0.0
WTC 1
sec.

0.0
rpm.

0.0
amp.

0.0
Bar.

0
°C.

0
PRODUCT QTY

0
PRODUCT QTY

Timers page presents some of the timers which is not belong to a motion organ.

Even if every motion organ page has possibility to set and check it's own timers, seeing some of the timers together might be useful.

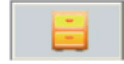


Screen Shots may differs from yours.

Page: 21

10. 1. RECIPE PAGE

You can reach this page by tapping 10.1.Recipe button



button

PRODUCT LIST		RECORD TIME
1	abc	19/03/2021 12:01:30
2	good	25/03/2021 12:59:14
3	newparison	22/03/2021 11:55:22
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

13:59 PROGRAMMER **OTOMOTION**

SELECTED PRODUCT
good

RUNNING PRODUCT RECIPE
abc

Note: New Records takes the running IPC values !

LOAD

SAVE AS

DELETE

You can store well adjusted product settings in the recipe container folder for further call back. This operations can be carried out at this Recipe Page.

! New recipe record data keeps actual values running in the controller.

For a new product record, tap **SAVE AS** button, and give a name in the dialog and then tap the **YES** button.

☺ Now your new product record has been created.

Whenever you want to call a product record back then select the record in the product list (tap on it to select) and then tap **LOAD** button that is all you need to do.

! LOAD function can not be carried out when machine runs in automatic mode.

You can delete a product record by the same way, then select the record in the product list (tap on it to select) then tap **DELETE** button.

☺ Now your product record has been deleted from the product list.



You will see background is green in the product list and it's name will appear on the **SELECTED PRODUCT** field when a product selected.

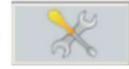


Screen Shots may differs from yours.

Page: 23

10. SETUP PAGE

You can reach this page by tapping 10. Setup button on the page dialog bar.



button on

09:22 **EMERGENCY STOP** **A406:Setting Up Door not closed !** **TECHNICIAN** **OTOMOTION**

English **GENERAL SYSTEM SETTINGS**

USER ACCOUNTS

Active User: **TECHNICIAN** Password:

LOG IN **LOG OUT**

Lubrication **Hydraulic Cooling**

Actual Cycle: **5** Setpoint: **20.0**

Lubrication Cycle: **10** Hysterizis: **5.0**

Time: **10000** Alarm: **60.0**

Manual **Actual** **0.0**

Product in the Mold **1**

MAIN HYDR. PUMP

M01: Emergency Stop Relay Ready ☐

M03: General Overload Fault ☐

M20: Safety Doors Okay ☐

M19: Carriage Servo Card Fault ☒

M24: Main Hydraulic Oil Filter Okay ☒

M23: Main Hydraulic Oil Temp. Okay ☒

M26: Main Hydraulic Oil Level Okay ☐

M18: Carriage Moving Prerequisite interrupted ☒

HEAD HYDR. PUMP

M01: Emergency Stop Relay Ready ☐

M03: General Overload Fault ☐

M05: Head Heat Ready ☒

M25: Parison Hydraulic Oil Filter Okay ☒

CYCLE **0.0 sec.**

WTC 1 **0.0 sec.**

nk: **0**

dgr: **0.0 %**

EXTRUDER

0.0 Rpm.

0.0 Amp.

0.0 Bar.

0 °C.

PRODUCT QTY **0**

SYSTEM **CONTROL PANEL** **HARDISK** **KEYPAD SCREEN** **I/O** **OPTIONS**

Setup page has many sub pages such as Recipe, Options, I/O test, Soft KeyPad, System Calibrations, etc.

Additionally you can reach of the PC's File Explorer, and Device Setting (setting date&time, IP adresses etc).

You can change user language which is comfortable for you by tapping on a flag easily.

You can change user level by giving the correct password and tapping



By default **AUTHOR** password is "12345" and **TECHNICIAN** is "11111", they can be changed by their

upper level users. To change the default passwords please log in as programmer and tap



PROGRAMMER password "649049" is the highest level and has the ability of change other passwords. Programmer password is static and can not be changed.

This page has also prerequisites for hydraulic pumps and setting of cooling of hydraulic.



Screen Shots may differs from yours.

Page: 22

10. 2. OPTIONS PAGE

You can reach this page by tapping 10.2.Options on the setup page.



button

15:28
EMERGENCY STOP
A402:Emergency Off Extruder Support !
PROGRAMMER
OTOMOTION

OPTIONS

☒ Test Cycle Activation
 2

☐ Knife or Guillotine
 3

☐ Heat Safety Time Activation
 4

☐ Mould Connection Mode
 5

☒ Side Cutter Unit Active
 61

CYCLE

0.0 sec.

0.0 sec.

WTC 1

nkt: 0.0

dgr: -6.4 %

EXTRUDER

0.5 Rpm.

0.0 Amp.

0.0 Bar.

0 °C.

Baloon Air

Start	Stop
120	150
0	0
0	0
0	0

PRODUCT QTY

0

Options page presents some of the Options which is not belong to a motion organ.

Even if every motion organ page has possibility to set and check it's own options, seeing some of the options together might be useful.



Screen Shots may differs from yours.

Page: 24

10.3. I/O TEST PAGE

You can reach this page by tapping 10.3. I/O Test on the setup page.



button

09:23

EMERGENCY STOP

A068: Extruder 1 Raw Material RunOut!

TECHNICIAN

OTOMOTION

1. EL1008	3. EL1008	5. EL1008	7. EL1008
<input type="checkbox"/> Carriage 1 down	<input type="checkbox"/> Cutting Device in Operation Position	<input type="checkbox"/> Blowing Air Locking Decomp 1	<input type="checkbox"/> Carriage 1 Upward
<input type="checkbox"/> Mould 1 Fully open	<input type="checkbox"/> Take Off 1 Open	<input type="checkbox"/> Release blowing air 1	<input type="checkbox"/> Carriage 1 Downward
<input type="checkbox"/> Welding Unit 1 Rear	<input type="checkbox"/> Take Off 1 Closed	<input type="checkbox"/> Vacuum 1 Active	<input type="checkbox"/> Mould 1 Closing
<input type="checkbox"/> Blowpin 1 vertical half up	<input type="checkbox"/> Punch 1 rear	<input type="checkbox"/> Locking Vacuum 1	<input type="checkbox"/> Mould 1 opening
<input type="checkbox"/> Blowing Needle 1 Rear	<input type="checkbox"/> Cooling station 1 Flushing Pin Up	<input type="checkbox"/> Support air steam barrier 1	<input type="checkbox"/> Blowpin 1 Vertical Downward
<input type="checkbox"/> Punch Half in Front	<input type="checkbox"/> Punching Station 1 Flushing Pin Up	<input type="checkbox"/> Support air barrier 1	<input type="checkbox"/> Blowpin 1 Vertical Upward
<input type="checkbox"/> Carriage 1 Up	<input type="checkbox"/> Input 3.7	<input type="checkbox"/> Support air steam barrier 2	<input type="checkbox"/> Take Off 1 Closing
<input type="checkbox"/> Article Inside Pressure 1 Monitoring	<input type="checkbox"/> Input 3.8	<input type="checkbox"/> Support air barrier 2	<input type="checkbox"/> Take Off 1 Opening

1. EL2008	3. EL2008	5. EL2008	7. EL2008
<input type="checkbox"/> Digital Output DO1.1	<input type="checkbox"/> Extr. 1 drive on	<input type="checkbox"/> Take-off 1 closing	<input type="checkbox"/> Blowing air filter condensate 1
<input type="checkbox"/> Blowmoulding machine on	<input type="checkbox"/> Extr. 1 drive cooling on	<input type="checkbox"/> Take-off 1 opening	<input type="checkbox"/> Blowing decomp. 1 on
<input type="checkbox"/> Hydr. pump 1 drive main contactor on	<input type="checkbox"/> Extr. 1 speed increasing	<input type="checkbox"/> Cooling Station 1 flushing pin downwards	<input type="checkbox"/> Blowing decomp. release 1
<input type="checkbox"/> Hydr. pump 1 drive start contactor on	<input type="checkbox"/> Extr. 1 speed reducing	<input type="checkbox"/> Cooling Station 1 flushing pin upwards	<input type="checkbox"/> Locking blowing air pipe 1
<input type="checkbox"/> Hydr. pump 1 drive delta contactor on	<input type="checkbox"/> Extr. 1 drive controller enable on	<input type="checkbox"/> Punching Station 1 flushing pin downward	<input type="checkbox"/> Vacuum 1 on
<input checked="" type="checkbox"/> Signal lamp 1 on	<input type="checkbox"/> Digital Output DO2.6	<input type="checkbox"/> Punching Station 1 flushing pin upwards	<input type="checkbox"/> Vacuum filter condensate 1
<input type="checkbox"/> Operation hours counter 1 on	<input type="checkbox"/> Digital Output DO2.7	<input type="checkbox"/> Cutting 1 backward	<input type="checkbox"/> Vacuum release 1
<input checked="" type="checkbox"/> Signal horn 1 on	<input type="checkbox"/> Conveyor belt on	<input type="checkbox"/> Cutting 1 forward	<input type="checkbox"/> Digital Output DO4.8

1. EL3318	2. EL3318	3. EL3318
<input type="checkbox"/> Extr. 1 heating zone 1	<input type="checkbox"/> Head 1 Heating zone 4	<input type="checkbox"/> Head 1 Heating zone 12
<input type="checkbox"/> Extr. 1 heating zone 2	<input type="checkbox"/> Head 1 Heating zone 5	<input type="checkbox"/> Head 1 Heating zone 13
<input type="checkbox"/> Extr. 1 heating zone 3	<input type="checkbox"/> Head 1 Heating zone 6	<input type="checkbox"/> Head 1 Heating zone 14
<input type="checkbox"/> Extr. 1 heating zone 4	<input type="checkbox"/> Head 1 Heating zone 7	<input type="checkbox"/> Head 1 Heating zone 15
<input type="checkbox"/> Extr. 1 heating zone 5	<input type="checkbox"/> Head 1 Heating zone 8	<input type="checkbox"/> Head 1 Heating zone 16
<input type="checkbox"/> Head 1 Heating zone 1	<input type="checkbox"/> Head 1 Heating zone 9	<input type="checkbox"/> Head 1 Heating zone 17
<input type="checkbox"/> Head 1 Heating zone 2	<input type="checkbox"/> Head 1 Heating zone 10	<input type="checkbox"/> Head 1 Heating zone 18
<input type="checkbox"/> Head 1 Heating zone 3	<input type="checkbox"/> Head 1 Heating zone 11	<input type="checkbox"/> Extruder 1 feeding zone

AUX

I/O test page is useful for the technician to see the machine's I/O without measuring it.



Screen Shots may differs from yours.

Page: 25

10. 4. SYSTEM PAGE

You can reach this page by tapping 10.4. System on the setup page.



button

15:24
EMERGENCY STOP
A405:Safety Gate not closed !
PROGRAMMER
OTOMOTION

Main Melt Input Pressure (Bar.)₁₀

Raw Data (AIN)	0.00	V
Raw Data Max.(AIN)	10.00	V
Raw Data Min.(AIN)	0.00	V
Engineered Data Max.	1035.0	%
Engineered Data Min.	0.0	%
Actual Engineered Data	0.0	%

Main Melt Output Pressure (Bar.)₁₁

Raw Data (AIN)	0.00	V
Raw Data Max.(AIN)	10.00	V
Raw Data Min.(AIN)	0.00	V
Engineered Data Max.	1035.0	%
Engineered Data Min.	0.0	%
Actual Engineered Data	0.0	%

Line Melt Input Pressure (Bar.)₁₂

Raw Data (AIN)	0.00	V
Raw Data Max.(AIN)	10.00	V
Raw Data Min.(AIN)	0.00	V
Engineered Data Max.	1035.0	%
Engineered Data Min.	0.0	%
Actual Engineered Data	0.0	%

Main Melt Input Threshold

0.0	Greater Than	350.0
-----	--------------	-------

Main Melt Output Threshold

0.0	Greater Than	200.0
-----	--------------	-------

Main Melt Sub. Threshold

0.0	Greater Than	35.0
-----	--------------	------

Hydraulic Pump Current (Amp.)₁₃

Raw Data (AIN)	0.00	V
Raw Data Max.(AIN)	10.00	V
Raw Data Min.(AIN)	0.00	V
Engineered Data Max.	400.0	%
Engineered Data Min.	0.0	%
Actual Engineered Data	0.0	%

Hydraulic Pump Current

0.0	Greater Than	65.0
-----	--------------	------

CYCLE

0.0 sec.
0.0 sec.

WTC 1

nkt: 0
dgr: -6.4 %

EXTRUDER

0.5 Rpm.
0.0 Amp.
0.0 Bar.
0 °C.

Baloon Air

Start	Stop
120	150
0	0
0	0
0	0

PRODUCT QTY

0

You can calibrate Melt Pressures, Hydraulic Accu Pressures at this page. Calibration is same as described at Page: 7

You also can put tresholds and melt pressure treshold for stopping extruder to prevent unwanted situations.

Page: 26

OTOMOTION

Otomotion Sistem Mühendisliği Sanayi Tic. A.Ş.
Ziya Gökalp Mah. Seyit Onbaşı Cad. No:36/19 S Plaza Kat:10
34490 Başakşehir / İSTANBUL- TÜRKİYE

Phn: +90 212 6718057

11. ALARM PAGE

You can reach Alarm page by tapping Allarm rotator object

A405:Safety Gate not closed !

wherever displayed.

09:24

EMEGENCY STOP

A412: Extruder 1 Driver Too Hot !

TECHNICIAN

OTOMOTION

ALARM TIME	DESCRIPTION	ACK TIME
1	A403:Hydr Safety Gate , System Cant Go Low Pressure !	
2	A038: Extruder 1 Zones Low Temp. !	
3	A040: Head Zones Low Temp. !	
4	A044: Melt 1 Temperature NOT Ready !	
5	A010: General OverLoad Fault	
6	A021: Emergency Stop !	
7	A022: Main Hyd. Over Load !	
8	A024: Extruder 1 Driver Fault !	
9	A030: Extruder 1 Barrel Fan Over Load !	
10	A048: Main Hydraulic Oil Level Very Low !	
11	A068: Extruder 1 Raw Material RunOut!	
12	A084: Emergency Door Open !	
13	A400:Emergency Off Machine Side !	
14	A402:Emergency Off Extruder Support !	
15	A404:Protection cover not closed !	

×

✓

CYCLE

0.0 sec.

0.0 sec.

WTC 1

nkt: 0.0

dgr: 0.0 %

EXTRUDER

0.0 Rpm.

0.0 Amp.

0.0 Bar.

0 °C.

PRODUCT QTY

0

You can reset alarms by tapping



and clear passived allarms by tapping



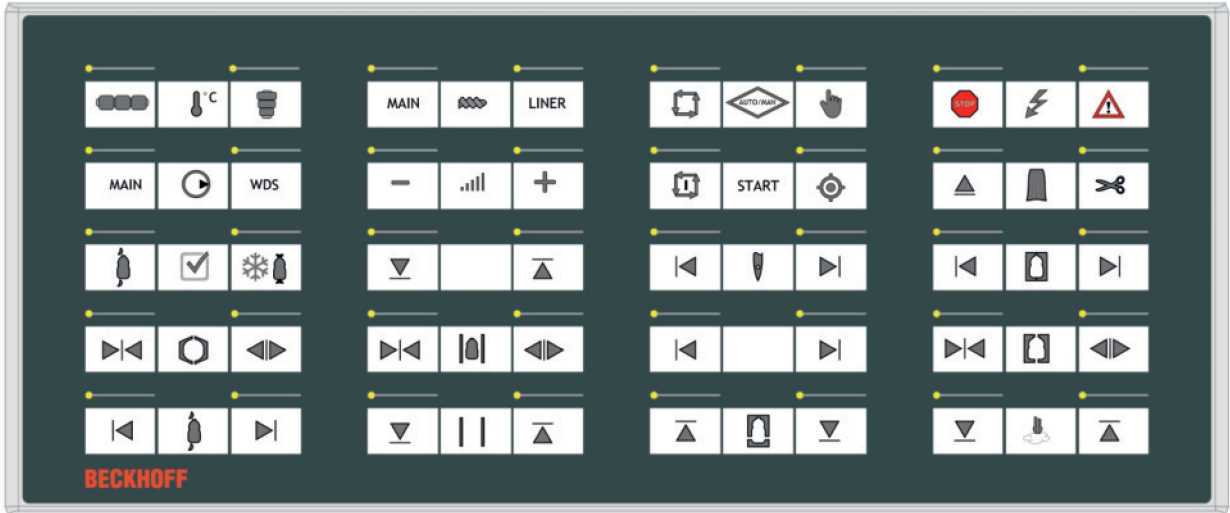
You can not reset and clear still active alarms anyway.



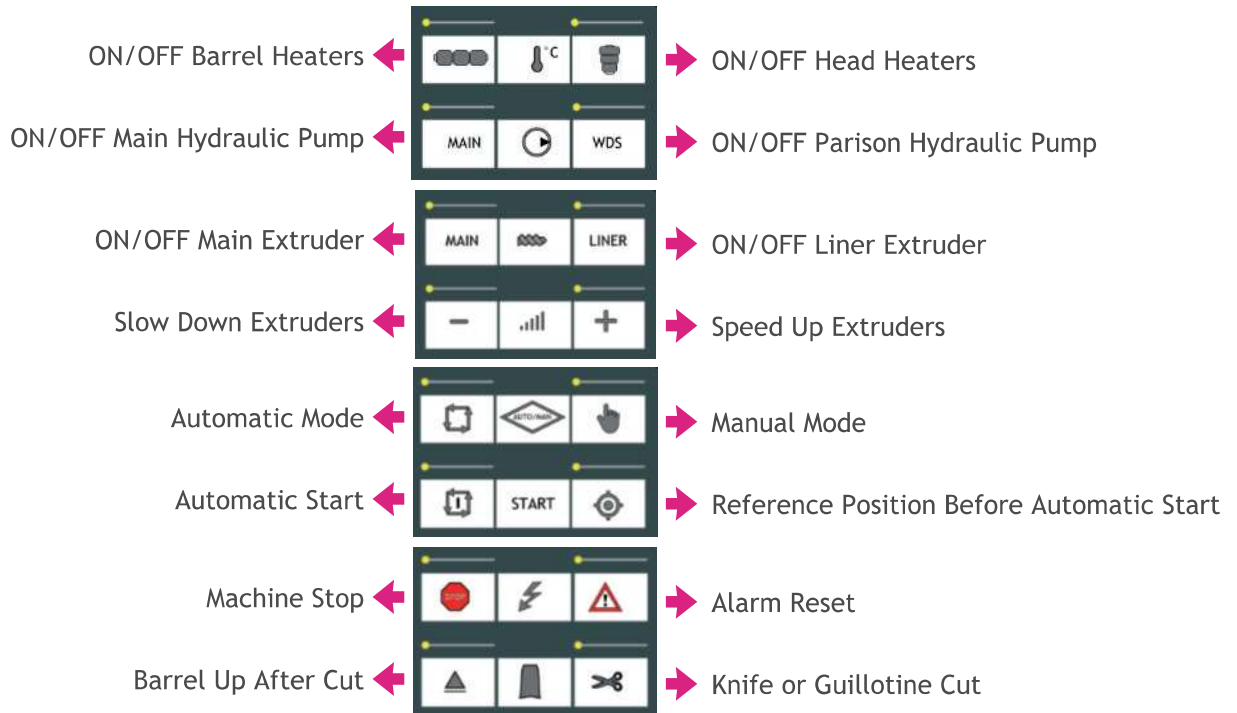
Screen Shots may differs from yours.

Page: 27

12. CONTROL KEYPAD



Using Keypad 40 Keys&Leds is useful since it shorten cabling, servicing for new machine while easing the control of operations.



Screen Shots may differs from yours.

Page: 28

Enable/Disable Deflashers		Enable/Disable Deflash Cooler
Deflasher Holder Close		Deflasher Holder Close
Deflasher Back		Deflasher Go
Reserved Down		Reserved Up
Take Off Close		Take Off Open
Take Off Back		Take Off Go
Needle Back		Needle Go
Reserved Back		Reserved Go
Mold Part Up		Mold Part Down
Carriage Back		Carriage Go
Mold Close		Mold Open
BlowPin Down		BlowPin Up



The Led of the Key is the status of the Key function.



Screen Shots may differs from yours.

Page: 29