

# CNC CONTROL



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KONTROL OTOMASYON



## PULSER3



EtherCAT



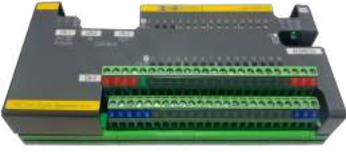
RTEX  
Realtime Express



PULSE

	PULSER3-ECAT	PULSER3-RTEX	PULSER3-PLSE
<b>Controlled Axes</b>	6	6	4
<b>Axis Control Method</b>	EtherCAT	RTEX	Pulse Train (Line Driver)
<b>Comm. Speed</b>	100 Mbps	100 Mbps	100 KHz
<b>Control Period</b>	1ms	1ms	1ms
<b>Feedback</b>	Yes	Yes	No
<b>Absolute Feedback</b>	Yes	Yes	No
<b>Digital Inputs</b>	Built-In 20 Isolated Digital Inputs (PNP/NPN)		
<b>Digital Outputs</b>	Built-In 16 Isolated Digital Outputs (NPN, 50 mA each)		
<b>Analog Input</b>	No	No	No
<b>Analog Output</b>	+/- 10 V Bipolar (Spindle Speed Command)		
<b>Encoder Input</b>	5V Line Receiver (Spindle Feedback)		
<b>Ethernet</b>	100Base-TX/10Base-T Ethernet (MODBUS TCP Protocol )		
<b>CAN-BUS</b>	1 Mbit Isolated (For Expansion I/O Modules)		
<b>RS-485</b>	Max. 200 Kbps Isolated (MP1 Or General Purpose Usage)		
<b>RTCP</b>	Yes(Licence Required)	Yes(Licence Required)	No
<b>Memory</b>	Micro SD Card (32 Gbyte)		

HS16IO

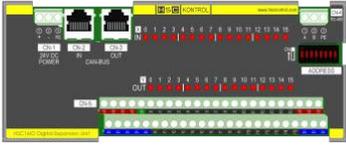


**Product Code**      **Description**

**HS16IO**

16 Digital Inputs (PNP/NPN), 16 Digital Outputs (PNP) 1 Amper, CAN-BUS

HSC-LZR



**Product Code**      **Description**

**HSC-LZR**

2 Analog Inputs, 2 Analog Outputs, 1 PWM Output, CAN-BUS

## Machine Panels

MP1



**Product Code**      **Description**

**MP1-21BTA**

21 Buttons, 21 Leds, 2 x Rotary Switches, RS-485

MP5



**Product Code**      **Description**

**MP5**

5 Buttons, 2 x Rotary Switches

MP6



**MP6**

4 Buttons, 2 x Rotary Switches, 1 x Joystick With 4 Positions



### Industrial Computer

Windows 10

Built-in Wifi

### Screen Dimensions

11.6 " - 1920x1080

15.6 " - 1920x1080

17.3 " - 1920x1080

21.5 " - 1920x1080



### Hardware

IP65 Protection Class

2x Ethernet Ports

Bluetooth

■ -10°C /+60°C Operating Temperature

■ P-CAP 10 Fingers Touch Screen

■ Our products have been tested and reported for temperature, vibration, impact, IP65, EMC, which ensures operability in industrial environments.



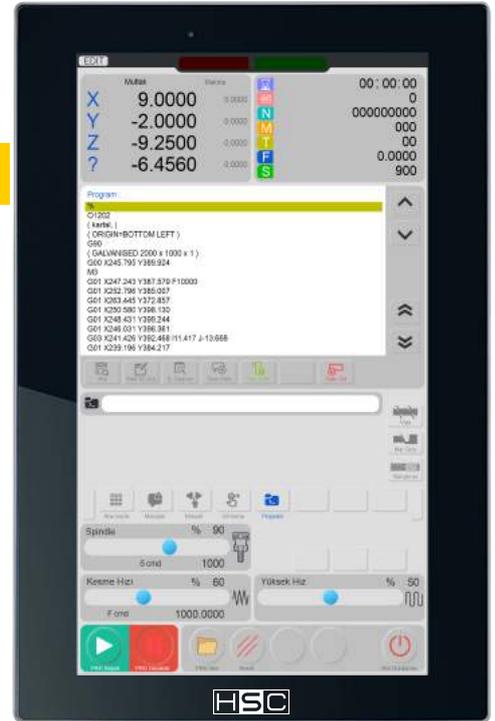
Operator panels are one of the indispensable parts of industrial automation. They offer the customer a wide selection range with the operator panel option starting from 7" and continuing up to 15".

Fast processor up to 800MHz, high memory capacity, simultaneous communication with multiple CNC controllers or PLCs, and ethernet option provide a flexible solution for the user. It allows you to access your systems remotely with VNC Server or Easy Access feature. With their brightness, resolution, high contrast, screen option up to 16.7M colors, they offer the user a wonderful clarity and a wide viewing angle.

- Does not need operating system
- IP65 Compliant front panel
- Supply isolation protection
- LCD wide viewing angle up to 70 degrees

Product Code	Description
HS8071iE	7" TFT, 16.7 M Colors, 600MHz CPU, 800x480, Ethernet Port, MPI 187.5K
HS8102iE	10,1" TFT, 16.7M Colors, 600MHz CPU, 1024x600, Ethernet Port, MPI 187.5K
HS8090XE	9,7" TFT, 262K Colors, RISC Cortex-A8 1GHz, 1024x768, Ethernet Port, MPI
HS8121XE	12,1" TFT, 16,2M Colors, Cortex-A8, Aluminum Mold Housing, 1GHz, 1024x768, Ethernet Port, SD Card, MPI
HS8150XE	15" TFT, 16,2M RENK, Cortex-A8, Aluminum Mold Housing, 1GHz, 1024x768, Ethernet Port, SD Card, MPI
HS3161X	15,6" FHD IPS, 16.2M RENK, 4-Core Cortex A17 CPU, 1.6GHz

HS 3161X



MP 1-21BTA



HS 8090XE

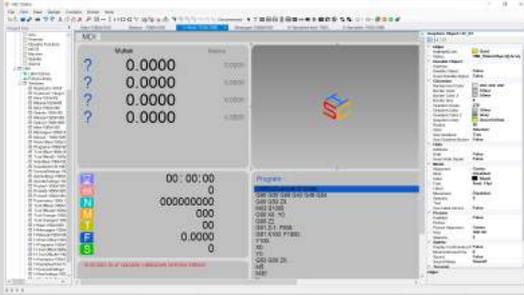


MP 5



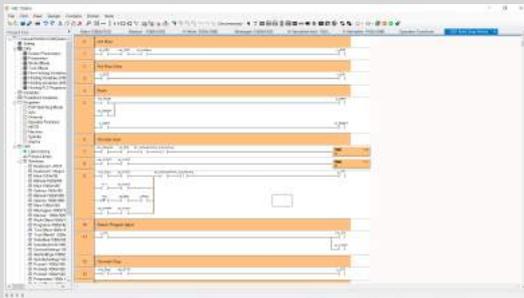
## User Interface Design

In HMI editing mode, desired interface designs can be made by simply dragging and dropping. Visual guides for the operators may be created by uploading images in .png, .jpeg format to designs.



## Ladder Editor

The bits between CNC and PLC can be managed in ladder edit mode. All digital inputs and outputs may be programmed in accordance with the machine. It can also be connected via HMI interface.



## User-Friendly Interface

### Graphic

Displays the tool path of the machined part.

### Positions

Displays active axis positions.

### Situations

Displays active M,S,T and line number.

### Program

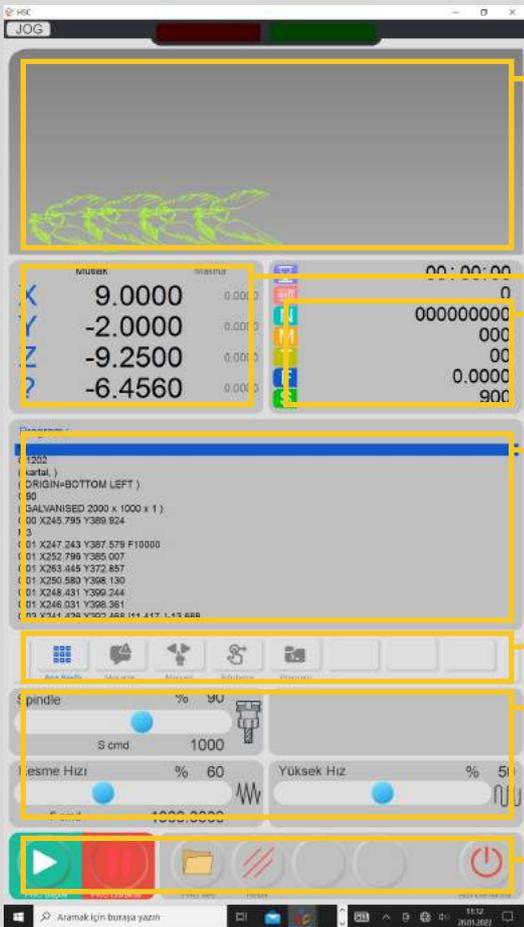
Displays the content of the currently selected work program and the active line.

Page navigation buttons.

### Speed Override

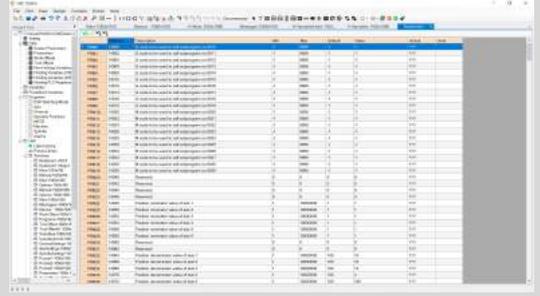
G00, G01 and Spindle speed override buttons.

Start, Stop and Reset buttons.



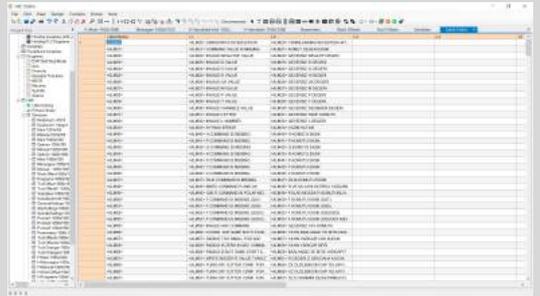
## Parameters

All the parameters, including system parameters, can be edited via HSC Studio. Backup files can be generated and used in the next projects.



## Multi-Language Support

HSC Studio supports multiple languages up to 10. With only one button, languages which have been created in the language tags can be switched. Turkish and English languages are built into HSC Studio.



## Advanced Level

- Wide variety G codes
- Supports .cnc .txt .nc .plt file formats
- Macro programming functions
- Creating subprograms
- Creating package programs
- Resume the program from where it was paused
- Program testing with the handwheel
- Ability to create machine-specific M codes
- Rotary axis and Spindle toggle mode
- Backlash compensation
- 3D Toolpath graphic
- Support tool length probe

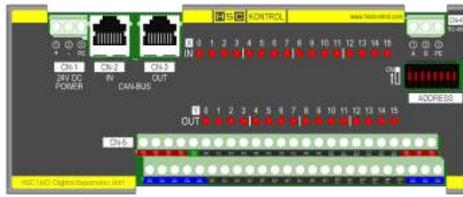






**HSC16IO**

Digital Expansion Module  
 16 Digital Inputs (PNP/NPN)  
 16 Digital Transistor Outputs (PNP 1A)



**HSC-LZR**

Laser Height Control Module  
 2 Isolated Analog Inputs  
 2 Isolated Analog Outputs  
 1 PWM Output

EtherCAT

**Minas A6B**



X

Y

Z

**TB-1H40 Terminal**



**Linear Encoder**



It can be operated in Absolute mode when batteries are attached.

**Built-in Inputs/Outputs**

20 Digital Inputs (PNP/NPN)  
 16 Digital Inputs (NPN 50mA)

## ■ Axes

- X, Y, Z Standard axes.
  - X2, Y2, Z2 Auxiliary axes.
  - A, B, C Rotary axes.
  - U, V, W Auxiliary axes selection.
  - E Axis (Extruder axis selection for 3D printers).
  - A/Spindle, B/Spindle, C/Spindle (Axis/Spindle selection with M Code).
  - Each axis can be controlled via the built-in PLC.
- +/- Software limit adjustable for each axis.
- 9999.9999 / -9999.9999 mm or 9999.9999 / -9999.9999 inches maximum movement.
- 150000 mm/min rapid movement speed.
- 80000 mm/min cutting speed.
- Programming the 2nd, 3rd and 4th reference points that can be adjusted by parameter (Tool change, table change etc.).
- In-order automatic reference.

## ■ Motion Control

- Chordal tolerance in arc cutting movements can be selected by parameter.
- Constant acceleration or constant jerk axis control.
- Sharp cutting movements can be softened by the amount of tolerance specified by the parameter.
- Creating a motion profile without exceeding the maximum acceleration/jerk value of any axis by reading the front line.

## ■ Macro Programs

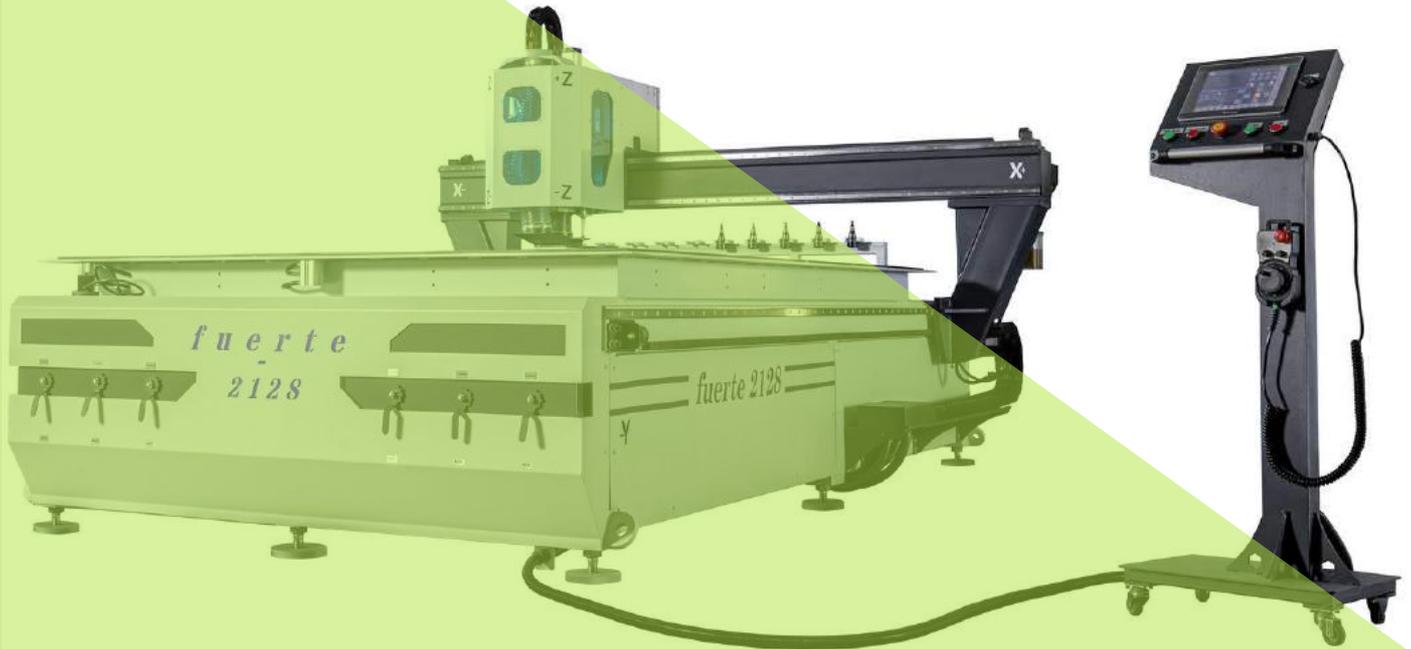
- Automatic tool changing, automatic table changing, etc. can be used for purposes.
- All commands can be associated with variables.
- Conditional jumping functions.

## ■ Operator Functions

- SBK: Single block (When start command is given, it processes a single line and waits for a restart).
- DRN: Dry run (Test all cutting movements at rapid speed).
- M01: Optional stop (Optional program pause).
- SIM: Simulation (Test the program in the forward/reverse direction).

Function	Group	Milling	Lathe	Function	Group	Milling	Lathe
Rapid Positioning	1	G00	G00	Macro Modal Call	12	G66	G66
Ping Pong Rapid Positioning	1	G00.1	G00.1	Macro Modal Call Cancel	12	G67	G67
Linear Interpolation	1	G01	G01	Rotate Coordinate System	0	G68	-
Circular Interpolation(Clockwise)	1	G02	G02	Turn Off Coord. System Rotation	0	G69	-
Circular Interpolation (Counter Clockwise)	1	G03	G03	Turret Mirroring On	16	-	G68
Dwell	0	G04	G04	Turret Mirroring Off	16	-	G69
Programmable Data Input	0	G10	G10	Laser ON (Piercing)	0	G70	-
Cartesian Coord. System Selection	17	G15	G15	Laser Lead In	0	G70.1	-
Polar Coordinate System Selection	17	G16	G16	Laser Cutting	0	G70.2	-
XY Plane Selection	2	G17	G17	Laser Lead Out	0	G70.3	-
ZX Plane Selection	2	G18	G18	Laser OFF	0	G71	-
YZ Plane Selection	2	G19	G19	Laser Height Calibration	0	G72	-
Inch System Selection	6	G20	G20	Laser Single Shot Test	0	G72.1	-
Millimeter System Selection	6	G21	G21	Laser Gas Test	0	G72.2	-
Axis Limit Setting On	4	-	G22	Laser Gas Test Cancel	0	G72.3	-
Axis Limit Setting Off	4	-	G23	Peck Drilling Cycle	9	G73	-
Move To Reference Point	0	G28	G28	Reverse Tapping Cycle For Milling	9	G74	-
Move To The 2. 3. 4. Ref. Point	0	G30	G30	Fine Boring Cycle For Milling	9	G76	-
Motion Skip (SKIP) Function	0	G31	G31	Cancel Canned Cycle	9	G80	-
Constant-Pitch Threading	1	G33	G33	Simple Drilling Cycle	9	G81	-
Variable-Pitch Threading	1	-	G34	Drilling Cycle/Reverse Boring	9	G82	-
Tool Radius Compensation Off	7	G40	G40	Peck Drilling Cycle	9	G83	-
Tool Radius Compensation Left	7	G41	G41	Tapping Cycle	9	G84	-
Tool Radius Compensation Right	7	G42	G42	Boring Cycle	9	G85	-
Tool Length Offset Compensation(+)	8	G43	-	Boring Cycle	9	G86	-
RTCP On	8	G43.4	-	Boring Cycle, Backboring	9	G87	-
Tool Length Offset Compensation(-)	8	G44	-	Boring Cycle	9	G88	-
Tool Length Compensation + RTCP Off	8	G49	-	Boring Cycle	9	G89	-
Temporary Coordinate System	0	G52	G52	Absolute Programming	3	G90	G90
Machine Coordinate System	0	G53	G53	Incremental Programming	3	G91	G91
Work Coordinate Systems	14	G54-G59	G54-59	Coord. System/Spindle Max. Speed	0	G92	G92
Extended Work Coordinate Systems	14	G59.1-G59.4	G59.1-G59.4	Feedrate Per Minute	5	G94	G94
Exact Stop Check	15	G61	G61	Feedrate Per Revolution	5	G95	G95
Continuous Cutting Mode	15	G64	G64	Return To Z Point In Canned Cycle	10	G98	G98
Macro Command	0	G65	G65	Return To R Point In Canned Cycle	10	G99	G99

# Router



**Gantry Axis (Shadow Motion)**

**Tool Changing (50 pcs)**

**High Speed Line Processing**

**Economical Interface Options**

**Tool Length Measuring Probe**

**0-10V Analog Spindle Control**

**Automatic Memory Of The Remaining Line And Starting From There**

**User Friendly Interface**

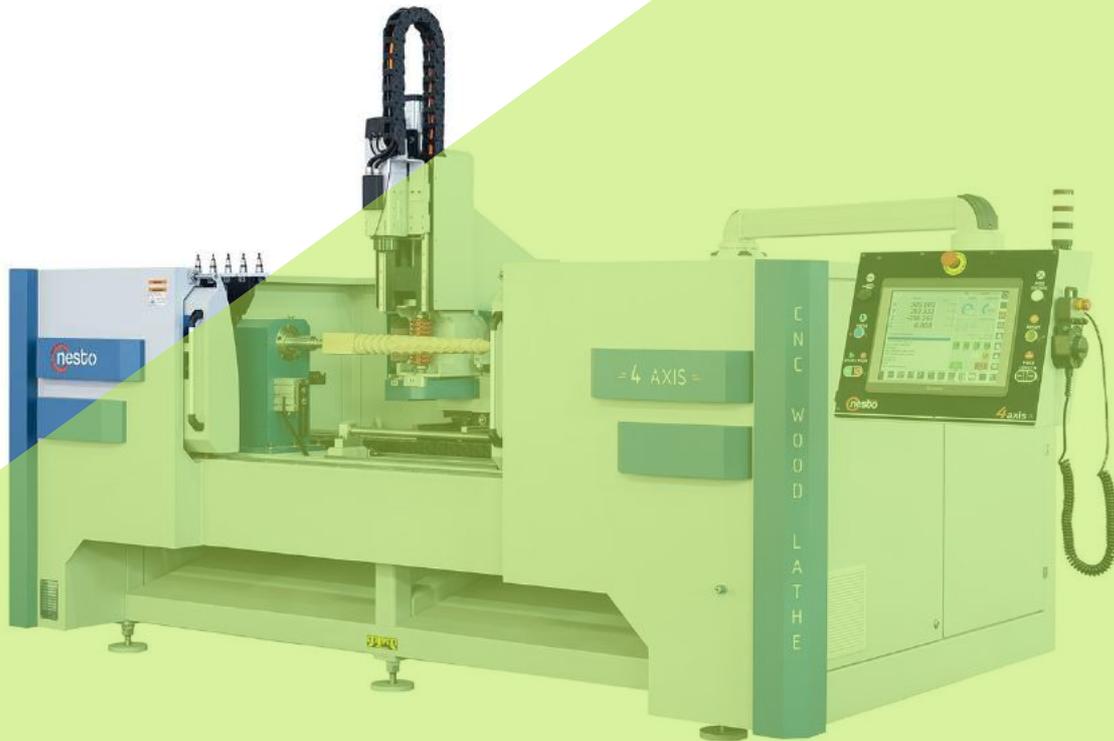
**Wi-Fi Program Transfer (Only On HSIPC4 Industrial PCs)**

**Program Transfer Via Ethernet And USB Memory**

**Absolute Axis Control (Battery Is Necessary)**

**Vacuum Control Functions**

# Lathe



**Tool Changing (50 pcs)**

**Double Spindle Support**

**Rotary Axis / Spindle Transition Mode**

**Tailstock Can Be Controlled With M Codes**

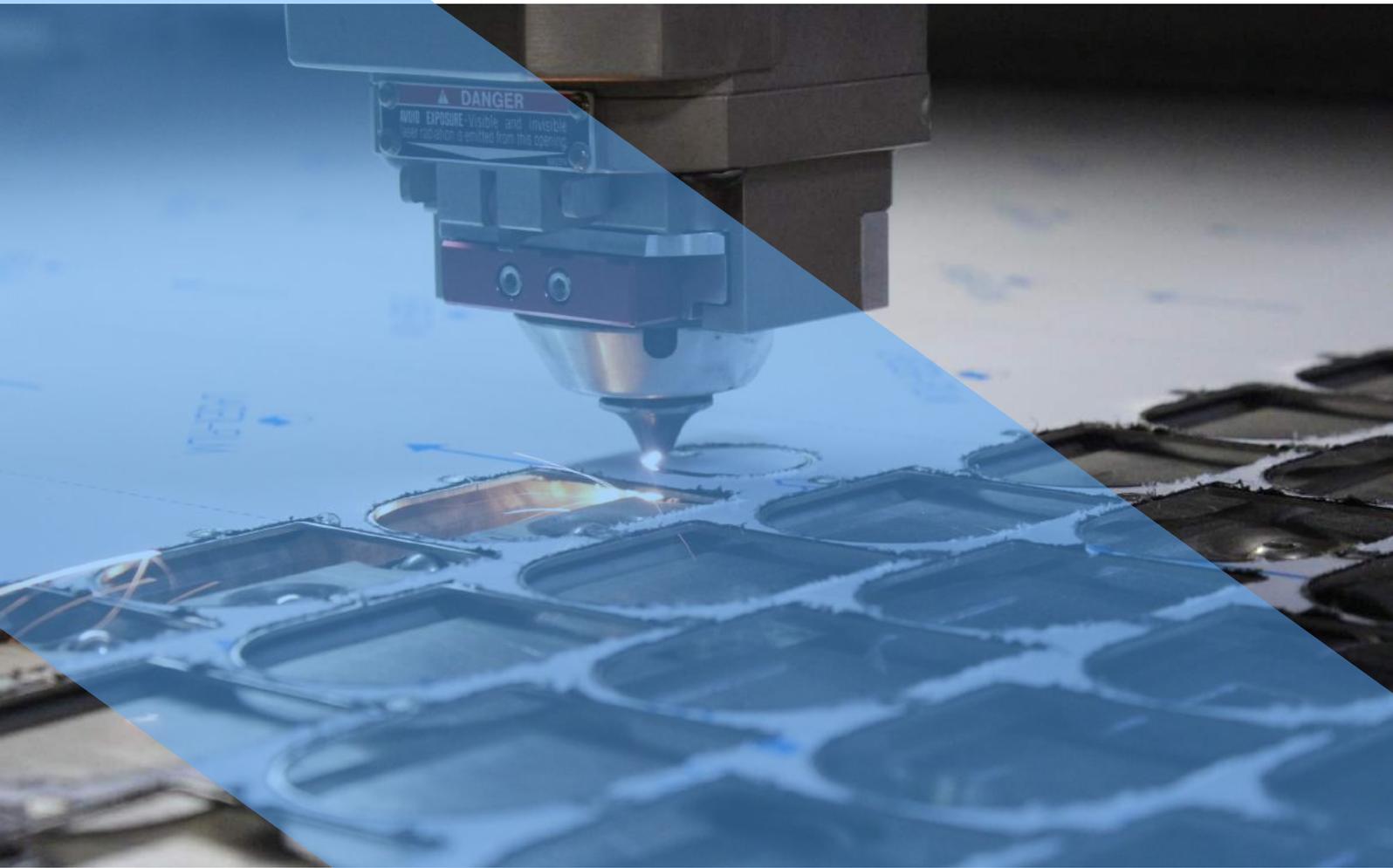
**Operator Safety With Door Sensor**

**Supports 2, 3 And 4 Axis Configuration**

**Tool Length Measuring Probe**

**Vibratory Sander etc. Features Can Be Controlled By Built-in PLC**

# Laser and Plasma



**High Speed Code Processing**

**Automatic Laser Height Control**

**Automatic Laser Height Calibration**

**Automatic Focus Control**

**Automatic Angle Detection**

**Operator Tests Run Such As Gas Test And One Shot**

**Piercing Parameters Up To 10 Steps**

**Support For 10 Different Cutting Modes**

**Cutting Parameters May Be Saved In XML Files**

**Automatic Memory Of The Remaining Line And Starting From There**

**Ability To Start From The Specified Part And Cut Number**

**Creating Cutting Graphic**

**Production In A Short Time With Ping Pong Rapid Movement**

**Analog Control And Feedback For Gas And Power**

**PWM Frequency And Intensity Adjustment**

# Other Applications



- Machining Center
- PVC Corner Cleaning
- Panel Cutting
- CNC Tenoner
- Extruder Screw Machine
- CNC Sewing Machine
- Water Jet
- Marble Processing
- Transfer Machines

- CNC Riveting
- Screw Tightening Machine
- Cartesian Robot
- Bohrwerk
- CNC Polygon Turning
- Hole Drilling
- CNC Foam Cutting
- Glass Cutting
- Cardboard Cutting



**HSC KONTROL OTOMASYON SANAYİ VE DIŞ TİCARET LİMİTED ŞİRKETİ**

Giyimkent 16. Street, No:103/A, Esenler / ISTANBUL / TURKEY

TEL: +90 212 544 03 20 FAX: +90 212 544 03 24



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