About CHMER

Established in 1975, CHMER is the largest EDM manufacturer in Taiwan, exporting over 55 countries. Product lines include Die Sinking EDMs, Wire Cut EDMs, Small Hole Drilling EDMs, High Speed Milling Machines, and Laser Machines. A comprehensive technical support completes our services.

Environmental Requirements

1.Ideal temperature-controlled room: 23 ± 0.5°C ; Humidity: below 75% RH
2.Avoid placing the machine near vibrating sources or sources of impact energy, such as floors with heavy machinery
3.Avoid placing the machine under direct sunlight
4.Avoid placing the machine near heat processing equipment or magnetic fields, as the controller's sensitive electronic components may be affected
5.Avoid placing the machine in dusty environments, which may impact the machine structure and components

Space Requirements

Ensure sufficient space around the machine for maintenance access and operational movement.

Grounding Work

1.To prevent electromagnetic interference and leakage, follow Class 3 grounding regulations (ground resistance below 10 Ω) as specified in the electrical equipment standards, and connect to other machines' grounding points
2.Use an independent grounding wire of 14 mm^2

Air Pressure Requirements

1.Only machines equipped with AWT (Auto Wire Threading) or immersion-type models require air pressure: 6 kg/cm^2

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Wire Cut•Die Sinking•Drilling•High Speed Milling•Laser Machine

WGLX000Ev01

CHMER
Non-traditional Machining Solution Provider

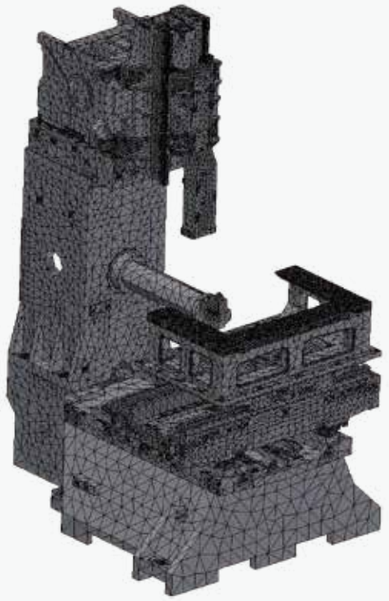
GLX General Purpose Linear-Driven Wire Cut EDM

INTELLIGENCE x FUTURE

GLX Series Wire Cut EDM

Machine Design

The GLX Series is positioned as a high-efficiency, all-purpose Wire Cut EDM.
Equipped with CHMER's self-developed UX1 Linear Motor Drive System and GenOS Control Platform, combined with EtherCAT high-speed communication technology and the 6th Generation Automatic Wire Threading (AWT) System, it is the ideal choice that provides practicality, efficiency, and reliability for both mold and parts machining applications.



01

Machine Structure

Designed through FEA (Finite Element Analysis) optimization, the structure achieves superior rigidity and stability.
The reinforced base and slide design ensure ultra-high precision even during simultaneous XY-axis machining, delivering long-term high-accuracy performance.

02

Automatic Water Shield Cleaning Mechanism

The water shield adopts an automatic self-cleaning design.
Continuous clean water flushing prevents machining debris and dirt buildup on the water shield and sealing surfaces, reducing frictional resistance and maintaining long-term positioning accuracy while shortening maintenance time.

03

Enlarged UV Travel "Magic Working Space"

The U/V travel has been increased from 60 mm to 100 mm for the GLX432,and from 100 mm to 120 mm for the GLX643,providing greater flexibility for complex and large-size workpieces.

04

Visualized Flow Meter

The newly added visual flow meter allows independent control of water pressure and flow rate, ensuring cutting stability and improved surface quality for both cutting and fine finishing.

05

Next-Generation HMI

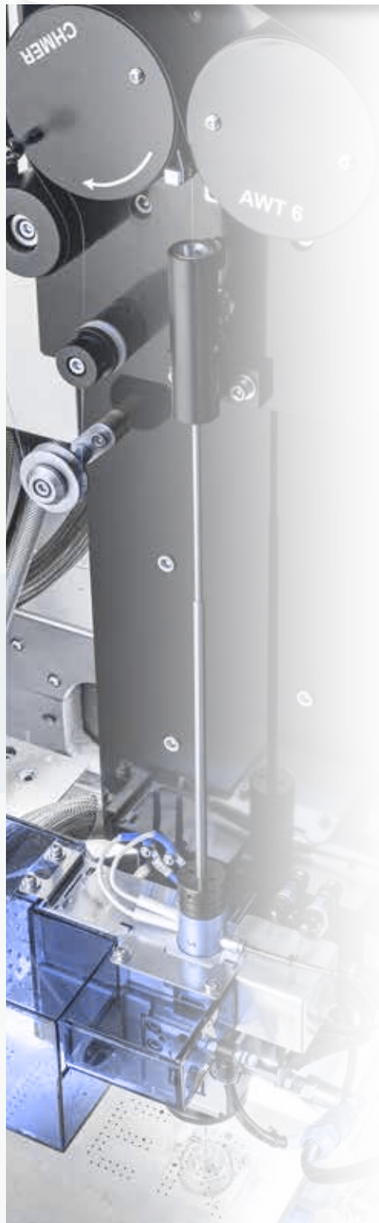
The brand-new Human-Machine Interface (HMI) is equipped with a 24-inch monitor.
Combining ergonomic design with standard keyboard and mouse operation, it delivers a more intuitive and user-friendly operating experience.

6th Gen AWT

5th vs. 6th Gen AWT System

Item	Unit	AWT 5.5	AWT 6th	Diff. %
Threading Time	sec	12	9	-25%
Wire Cutting Time	sec	4.5	2.5	-44%
Heater Lifetime	mo	4	8	100%
Heater Power Consumption	W	5.5	4.5	-18%
Circuit Board Count	pcs	7	5	-28%
AWT System Power Usage	W	320	165	-48%

Backed by years of automation experience, CHMER introduces the enhanced 6th Gen AWT system. It shortens wire threading and cutting time by over 20%, extends consumable lifespan by more than 100%, and reduces overall power consumption by 48%.



01

Intuitive Parameter Adjustment Interface

Offers 50 copper wire parameter sets. Simply select the suitable one for different wire brands and diameters to ensure excellent threading performance.

02

3999 Programmable Hole Machining Records

Capable of storing up to 3999 hole machining records for easy access to multi-hole data.

03

Break point Re-threading Function

After a cutting interruption, threading resumes at the break point for immediate machining—no need to return to the start, reducing idle travel time.

04

Auto Threading Assistant Device

Enhances threading success for high thickness through Auto Threading Assistant Device

Feature Highlights

- **High Reliability & Low Maintenance**
  Reliable mechanical design minimizes maintenance needs and achieves nearly 100% wire threading success.
- **Wire Break & Underwater Threading**
  Supports wire break and underwater threading to reduce idle time and enable smart, unmanned operation.
- **Flexible Threading Modes**
  Customizable threading modes with the Automatic Wire Threading Assistant Device ensure smooth threading for thick workpieces.
- **Automatic Water Level Integration**
  Works with the Intelligent Water Level Control System for fully automated multi-level machining tasks.

i8+ Power Supply

15% CUTTING SPEED

ENERGY SAVING 28%

The intelligent i8+ power system boosts cutting speed by 15% while achieving 28% energy savings.
It also features automatic discharge path optimization to enhance machining stability and reduce power loss.

01 Discharge Control System

The system uses an embedded current-reducing control architecture and ASIC chips to improve discharge efficiency. It monitors the gap in real time, effectively suppresses arc discharge, and stabilizes the cutting conditions, resulting in up to 15% faster cutting speed.

02 IVC High-frequency Switching Inverter Power Supply

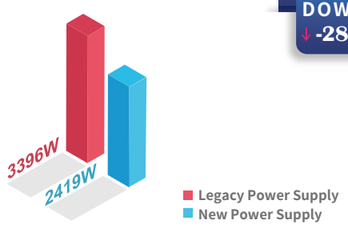
The upgraded IVC high-frequency switching inverter offers wide-range power output adjustment,
allowing operators to fine-tune the discharge energy for better cutting performance and system safety.

It also adopts advanced filtering technology to reduce external interference and output more accurate energy pulses, ensuring precise discharge judgment and stable cutting performance.

03 Energy Recycling Technology Next-Generation

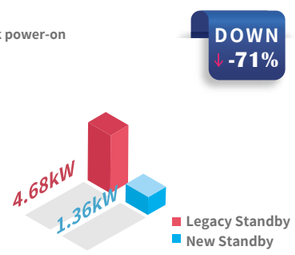
The new-generation i8+ Power System features advanced energy recycling design, converting reverse current energy into reusable power for 28% energy savings and reduced carbon emissions,achieving true energy efficiency.

01 Power Efficiency Comparison



02 Standby Power Saving Comparison

Note:
Under water tank power-on standby mode



High-efficiency Energy Management System

71%
Water tank standby time power consumption reduced by 71% compared with traditional designs.

45%
The Energy Saving Inverter Chiller reduces power consumption by 45% compared with conventional chillers.

40%
Overall machining energy consumption reduced by 40%, compared with the previous generation Wire Cut EDM.

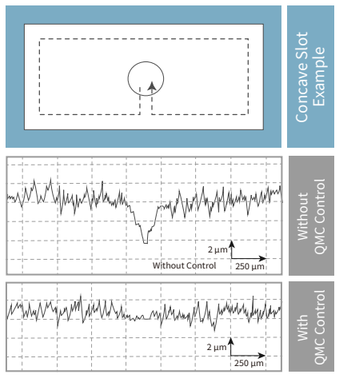
28%
Machining power system energy consumption reduced by 28%.

Through the integration of the power-saving system and water circulation optimization, overall energy consumption is significantly reduced — 28% less for machining power and 45% less for the water system,resulting in a total energy reduction of up to 40%.
The system features a built-in regenerative energy circuit that reuses reverse current energy, achieving true energy recycling and efficiency.
Additionally, the adoption of IE3-grade inverter motors allows intelligent power output adjustment according to actual machining load, delivering the best balance between energy efficiency and operational stability.

01

QMC – Surface Quality Master Circuit

Reduces the generation of wire marks at the entry and exit points on flat and curved surfaces.



02

Electrode Wire Optimization

Equipped with the latest electrode wire design, the system optimizes current density distribution. With intelligent anti-wire breakage control, it quickly and precisely eliminates abnormal discharges, significantly improving machining stability and accuracy.

03

Energy-saving Inverter Chiller

Equipped with automatic temperature detection and intelligent inverter control, the chiller improves cooling efficiency and maintains precise water temperature within ±0.5℃.
It ensures stable, high-accuracy machining while reducing power consumption by 45% compared with standard chillers.

Linear Motor

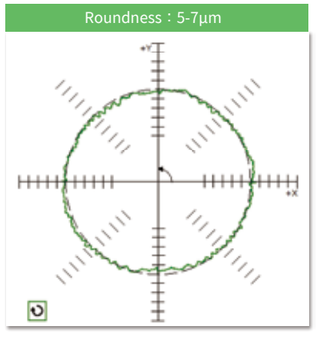
All models are equipped with CHMER's UX1 linear motor drive system, delivering stronger thrust with lower energy consumption to ensure stable and accurate movement every time.
It features zero friction, no backlash, no transmission loss, no vibration, and excellent responsiveness.

Ballbar Testing

"After 5 Years of Use"

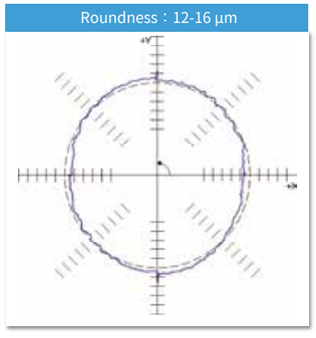
Linear Motor Model

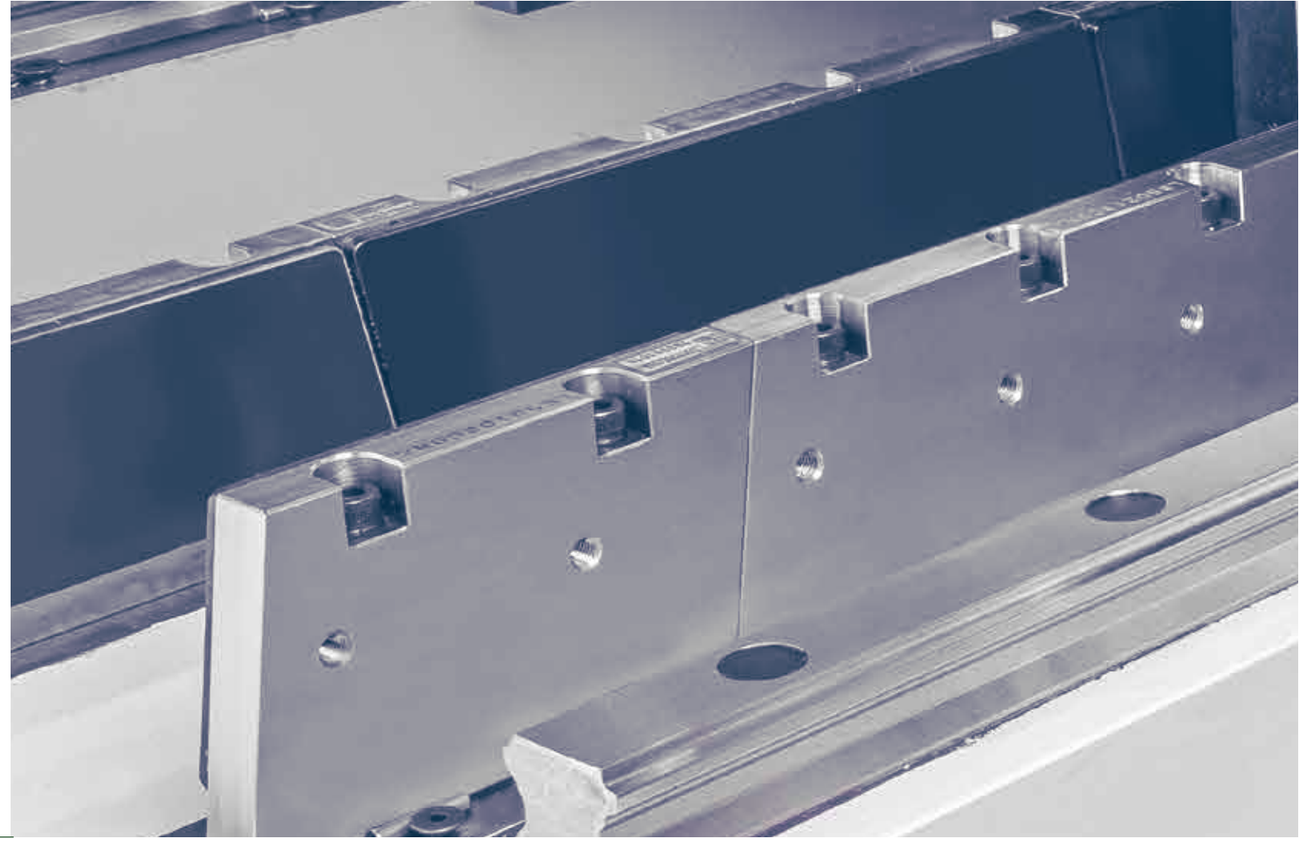
Roundness：5-7μm



Traditional Ball-Screw Model

Roundness：12-16 μm





Linear Motor Achieves Superior Accuracy in Corner Transitions

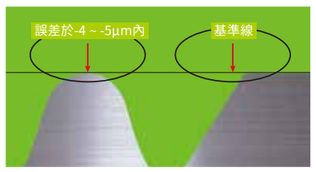
"Magnification: 120×"

Linear Motor Model

Radius tolerance within 3 μm

Traditional Ball-Screw Model

Radius tolerance 4–5 μm



Reduction of the tolerance on shape accuracy

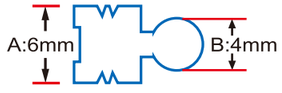
Especially at the intersection of straight line to curve

	Linear Motor		Ballscrew	
	Section A	Section B	Section A	Section B
Top	5.999	3.999	5.999	3.998
Middle	6.000	3.998	5.998	3.995
Bottom	6.000	4.000	6.000	3.999
Tolerance	-0.001	-0.002	-0.002	-0.005

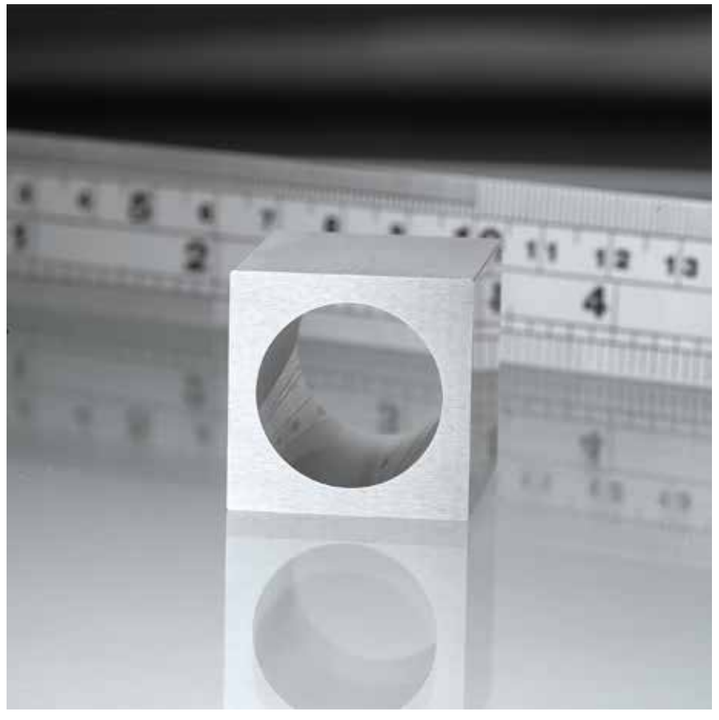
《Machining Conditions》

- Brass wire = 0.20 mm/BS
- Workpiece=SKD11
- Thickness=50 mm
- Number of cuts=3

《Cutting Profile》



Enhanced Surface Accuracy



《Machining Conditions》

- Brass wire = 0.20 mm/BS
- Workpiece = SKD11
- Number of cuts = 5
- Thickness = 25 mm
- Surface roughness = Ra 0.25 μm
- Roundness = 2 μm

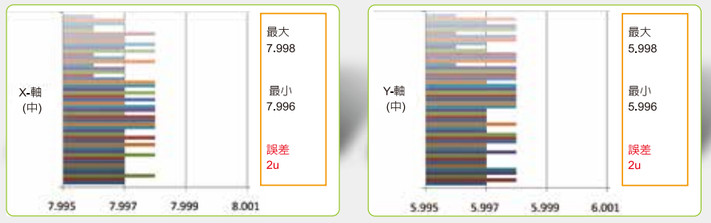
Precision Performance

High Accuracy + High Repeatability = High Stability

Positioning Accuracy – Pitch (mm)					Shape Accuracy – Cutting Shape (mm)			
Coordinate			Measured Deviation		Measured Deviation			
NO	X	Y	X	Y	NO	Square Hole	X	Y
1	0.00	0.00	0.0000	0.0000	1	8 x 8	0.0012	0.0009
2	360.00	0.00	-0.0036	-0.0002	2	8 x 8	0.0015	0.0013
3	360.00	200.00	-0.0027	-0.0021	3	8 x 8	0.0011	0.0010
4	0.00	200.00	-0.0003	-0.0012	4	8 x 8	0.0009	0.0012
Min. Deviation mm			-0.0003	-0.0002	Min. Deviation mm		0.0009	0.0009
Max. Deviation mm			-0.0036	-0.0021	Max. Deviation mm		0.0015	0.0013

- Workpiece：SKD11
- Thickness：20.0 mm
- Wire Diameter：0.25 mm(Standard Brass Wire)
- Number of cuts：3 passes (1 rough cut + 2 skim cuts)
- Ambient Temperature：23°C ± 0.5°C

Machining Accuracy



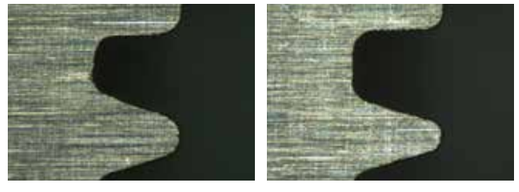
The machine maintained a repeatability of ±2 µm over 50 consecutive punches, showcasing precision comparable to premium Japanese and Swiss models.

50 consecutive single-pass punches，Machining size: 8 × 6 mm　Thickness: 30 mm

01 AC/DC Power Supply

The high-speed non-electrolytic AC power system is ideal for special metals such as tungsten alloy and titanium alloy.
It suppresses electrolysis-induced surface corrosion and oxidation, significantly reducing soft layer formation and extending mold lifespan.

02 Corner Control Function



The unique corner control function ensures ultra-precise machining quality.
Conditions：

- Workpiece: SKD11
- Wire Diameter: Ø 0.20mm
- Number of cuts: 1
- Magnification: 150× optical projector

AC - µ Super Fine Finish Circuit (Opt.)

Applicable only to the GLX432 model

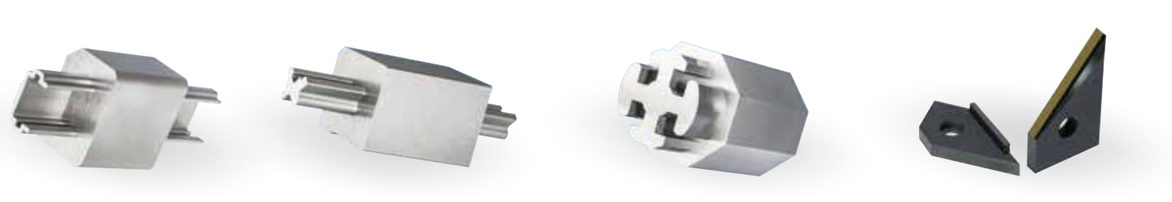
AC-µ Super Fine Finish Circuit enables high-frequency discharge and precise energy control for superior surface quality：

- Best surface roughness: Ra 0.14 µm (Tungsten Carbide)
- Best surface roughness: Ra 0.25 µm (SKD11 Steel)

Material: Tungsten Carbide | Wire Ø 0.20 mm | Thickness: 20 mm						
Passes		5	4	3	2	1
Surface Roughness (µm)	Ra	0.14	0.20	0.45	1.42	2.0
	Ry	1.2	1.6	3.3	10.2	13.0

Material: SKD11 | Wire Ø 0.20 mm | Thickness: 50 mm						
Passes		5	4	3	2	1
Surface Roughness (µm)	Ra	0.25	0.32	0.62	2.0	2.4
	Ry	2.1	3.0	5.0	13.3	14.3

Machining Applications



High-Precision Fitting Machining

FPC Industry

- Work Material: SKD11
- Workpiece Thickness: 50 & 20 mm
- Wire Diameter: Ø 0.25 mm
- Cutting Passes: 3 cuts
- Machining Accuracy: 3 µm
- Surface Roughness: Ra = 0.58–0.63 µm
- Machining Time: P = 40 min / D = 25 min
- 2-piece set: Q-fit Sliding Fit Gap (3 µm)

High-Precision Fitting Machining

Progressive Stamping Mold

- Work Material: SKD11
- Workpiece Thickness: 30 & 20 mm
- Wire Diameter: Ø 0.20 mm
- Cutting Passes: 3 cuts
- Machining Accuracy: 3 µm
- Surface Roughness: Ra = 0.63 µm
- Machining Time: P = 15 min / D = 8 min
- 2-piece set: Q-fit Sliding Fit Gap (3 µm)

Low Deformation

Fitting Machining

- Work Material: SKD11
- Workpiece Thickness: 50 mm
- Wire Diameter: Ø 0.25 mm
- Cutting Passes: 3 cuts
- Machining Accuracy: 3 µm
- Surface Roughness: Ra = 0.68–0.70 µm
- Machining Time: 5 hr 33 min
- 2-piece set: Q-fit Sliding Fit Gap (4 µm)

PCD

Polycrystalline Diamond Tools

- Work Material: PCD
- Workpiece Thickness: 2.5 mm
- Wire Diameter: Ø 0.20 mm
- Cutting Passes: 5 cuts
- Machining Accuracy: 5 µm
- Surface Roughness: Ra = 0.4 µm (AC-µ)
- Recast Layer Thickness: 10 µm

In-House Controller

Features of the W5N Control System

The W5N GenOS controller integrates a Linux-based high-performance system with industrial PC technology, boosting computing power by over 15 times and supporting multi-axis synchronous control.

It features Database, FTP server, OPC UA server, and remote desktop functions for seamless data collection, remote monitoring, and MES system integration.

The modular hardware design improves maintenance convenience, enables quick upgrades, and facilitates efficient external device integration, ensuring long-term operational stability.

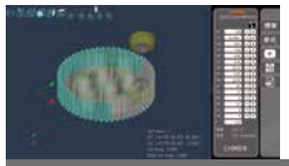
New vs. Old Controller Comparison				
Item	Unit	F-Type	N-Type	Difference
Computing Performance	FLOPs	806	12135	↑15×
Size	LxHxW cm	28.5x20.5x30.5	19.4x14.8x6	↓90%
Weight	kg	9.05	1	↓90%
Power Consumption	W	44	13.44	↓70%
Component Count	pcs	159	12	↓92%
Overall Assembly Size	kg	105	84	↓20%
100MB File Loading Speed	s	31.8/36.5	2.9/2.7	↑12×

Intuitive Operation Interface

Simple and clear touch interface with guided navigation, allowing new users to operate quickly.

Preloaded Hole Machining Data

Stores up to 3,999 sets of machining data, with access to multiple hole-cutting parameters.



CAD/CAM Software

Supports 2D/3D graphics input, enabling direct toolpath conversion without additional processing steps for seamless execution.

01 Linux-Based OS

Independently developed Linux-based technology ensures high availability, stability, and reliability. It flexibly meets various operational needs without concerns about viruses or software licensing issues, delivering optimal performance across different applications.

02 QR Code Program Input (Opt.)

Utilizes QR code scanning for quick input of program calls and machining parameters, streamlining pre-processing setup while reducing manual input time and error rates.

03 EtherCAT Communication

Combining EtherCAT automation with GenOS enables high-speed response and scalability, meeting multi-axis synchronized motion control needs. Supports up to 7-axis EtherCAT communication and discharge modules, boosting computing performance 15×.

04 Enhanced Performance

From graphical data loading to pre-machining simulation, the controller's computation time has improved 15× compared to the previous generation.

Mobile Technology and Optimal Intelligence (Opt.)

The all-new Remote Monitoring & IoT enables Cloud connectivity via mobile devices for instant machine status access.

The intelligent mobile function provides an integrated platform for smart, future-ready management.

With the Intelligent Information Management Center as the core, the IoT system collects and analyzes key machine data to support big-data applications.

Available software platforms:

▌Mobile Data Platform ▌iConnected Information Management Center

Users can select the platform that best fits their management needs.

Information Management Center - Features

Data Visualization

Real-time machine data is displayed, retrieved from the machine's database, and converted into pie charts and line graphs, using data visualization for production line analysis.

Active Push Notifications

CHMER's smart push notification system is perfectly integrated with the alarm system, allowing you to monitor machine status anytime, anywhere.

Whether dining, resting, socializing, or on vacation, you will receive notifications instantly on your phone or tablet.

In the Industry 4.0 era, this system significantly shortens problem response time, reduces cost losses, minimizes manpower for on-site monitoring, and enhances overall operational efficiency.

Information Management Center - Includes

01 Mobile Data Platform

Offers mobile management capabilities, allowing instant access to various machine information, such as machine status, uptime, consumable life management, and real-time machining monitoring, through phones or tablets.

02 iConnected

Stores large amounts of machine data every second, viewable through historical data query pages, allowing the resolution of the following issues:

a. Understanding machine uptime (critical for customers)

b. Knowing consumable usage (helps customers know when to replace consumables)

c. Conducting detailed analysis of machine operation (retrieve alarms during specific timeframes, and know the machine's status at the time to further analyz.

Standard/Optional

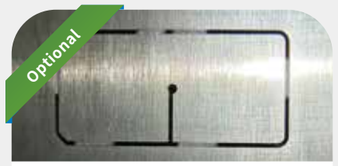
Standard ● Optional ○ Not Available —

Features & Item	Specification	Unit	GLX432	GLX643
Power Supply & Control System				
Power Supply	i8+	1 set	●	●
AC/DC Power		1 set	●	●
Super Fine Finish Circuit		1 set	○	○
Touch Screen	24"	1 set	●	●
Interrupted Power Recovery		1 set	●	●
USB		1 set	●	●
Internet Data Transfer		1 set	●	●
DXF Transferring Function		1 set	●	●
Remote Monitoring & Internet Connection		1 set	○	○
Mechanism & Machining System				
Linear Motor Drive System	X & Y Axes	1 set	●	●
Absolute Linear Scale	0.5 Resolution	1 set	●	●
Automatic Wire Threading System	AWT 6.0	1 set	●	●
Wire Diameter Machining	Φ 0.15–0.3	1 set	●	●
Fine Wire Specification	Φ 0.1	1 set	○	○
Wire Threading Assistant Device		1 set	●	●
Z-Axis Travel Extension	300 mm	1 set	○	-
Z-Axis Travel Extension	400 mm	1 set	-	○
High Efficiency Water Circulation System		1 set	●	●
Energy Saving Inverter Chiller	20,000 BTU	1 set	●	●
Additional Functions				
6th Axis Machining		1 set	○	○
Jumbo Wire Feeder	30kg	1 set	○	○
2 in 1 Transformer and AVR		1 set	○	○
Waste Adhesion Prevention		1 set	○	○
Sleep Mode & Wake-up		1 set	●	●
Wire Overflow Protection		1 set	●	●
QR Code Program Input		1 set	○	○
QMC-Surface Quality Control Circuit		1 set	○	○

Standard/Optional Features

Sleep Mode & Wake-up

Allows you to pre-set daily wake-up times for the equipment, enabling it to start up and execute production tasks immediately.



Dross Adhesion Prevention

Optional welding helps prevent dross from affecting machining. Residual dross is removed post-processing, improving equipment utilization.

The 6th Axis

Equipped with IP68 protection, the 6th-axis supports underwater 3D machining, enabling complex surfaces and rotational angles for broader applications and greater added value.

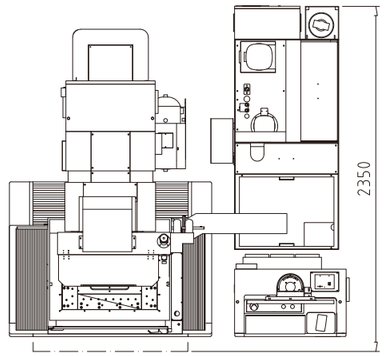
Standard Specifications

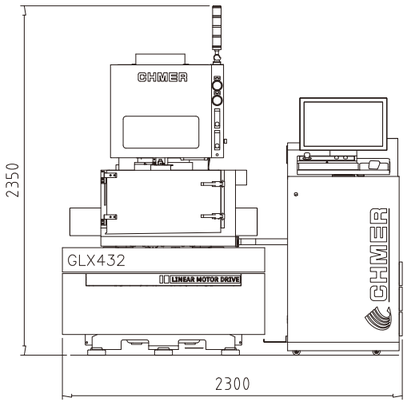
Model		GLX432	GLX643
X,Y,Z Axis Travel	mm	400 x 300 x 250	600x400x310
U,V Axis Travel	mm	100 x 100	120x120
Max. Workpiece Size	mm	725 x 600 x 245	910x700x305
Max. Workpiece Weight	kg	450	650
X/Y Feed Rate	mm/min	1800	1800
Axis Drive System		XY Axes Linear Motor Drive/ UVZ Axes AC Servo Motor Drive	
Wire Diameter Range	mm	Ø 0.15 ~ 0.3 (Ø 0.25)	
Wire Tension	gf	300 ~ 2,500	
Max. Wire Feed Rate	mm/sec	300	
Wire Feeder Capacity	kg	≤ 8	
Max. Taper Angle	mm	± 21°/110(Wide Angle Nozzle，DA+DB=15	± 21°/140(Wide Angle Nozzle，DA+DB=15
Machine Dimension (WxDxH)	mm	2300 x 2350 x 2350	2800 x 2500 x 2450
Net Weight	kg	3000	3950
Dielectric Filtration System			
Dielectric Capacity	L	650	760
Filter		Paper	Paper
Ion Exchange Resin Filter	L	14	14
Water Quality Control		Auto	Auto
Water Temperature Control		Auto	Auto
Power Supply Unit			
Circuit Type		Transistor, No Resistance Loop	
Discharge Mode		Rough Machining / Fine Machining / AC-μ Super Fine Finish	
Discharge Voltage	Levels	16 (Standard) / 20 (Optional)	
Discharge Time	Levels	60	
Off Time	Levels	233	
Max. Power Consumption	kVA	8	
Input Type		Keyboard, RS232C, RS422, RS485, USB, LAN	

CNC Unit			
Controller Version	N-Type Controller	Resolution Unit	0.0001 mm
Operating System	GenOS (LINUX)	Max Command	±9,999.9999 mm
Bit Architecture	32 bit	Interpolation Functions	Linear / Circular
CPU Core Count	Quad-core	Position Command	Absolute / Incremental
RAM	4	Command Unit	Metric / Inch
Storage	32	Machining Speed Control	Servo / Fixed
Display Type	24" Color Touch Screen	Program Override	0.001–9,999.999
Servo Axis Control	EtherCAT – Semi-closed Loop, Fully-closed Loop (Optical Encoder)	Program Storage Capacity	1000–9,999
Controlled Axes	5 / 7 Axes: X, Y, U, V, Z (Optional Rotary Axis)	Input Power	3 Phase 220V ± 5%

Floor Layout

GLX432





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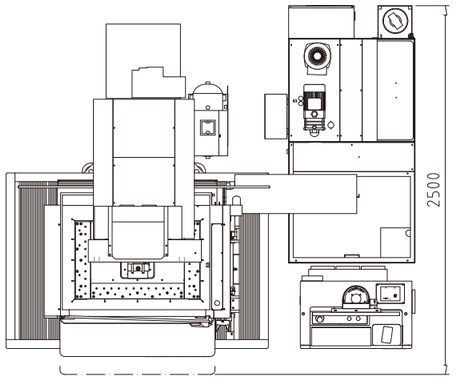
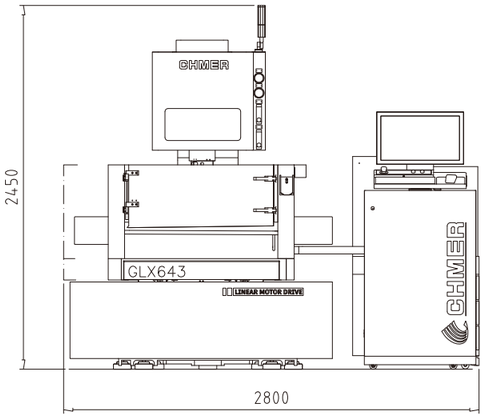
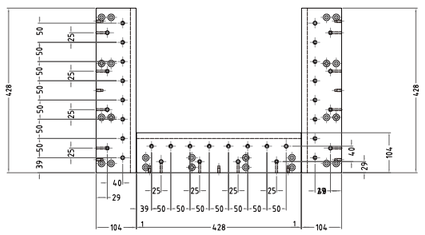
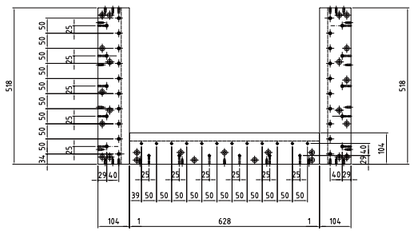




Worktable Hole Layout



Worktable Hole Layout



※Due to continuous improvements, the design and specifications are subject to change without prior notice.