

High End AC Servo Drives

## EL8 Series

EL8 Series AC Servo Drives are our latest high end servo drives which are packed with a whole lot more new hardware and software features. This series of servo drive also comes with another version which combines analogue control, Modbus RTU protocol (RS485) and pulse + direction control into one. We added STO SIL3, analogue I/Os, holding brake port and EL8 series now supports a 2nd external encoder as well with our full closed loop control.



Robotic Arm



Precise Machining



Semiconductor



Electronics

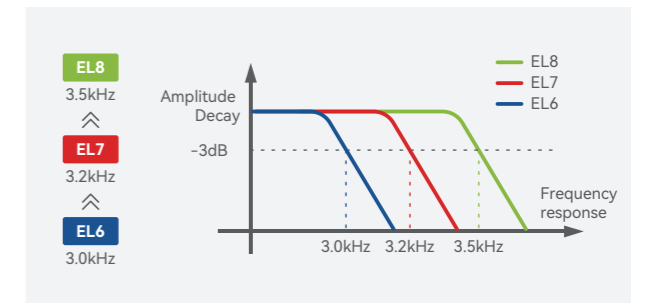


Fiber Laser

### Overview

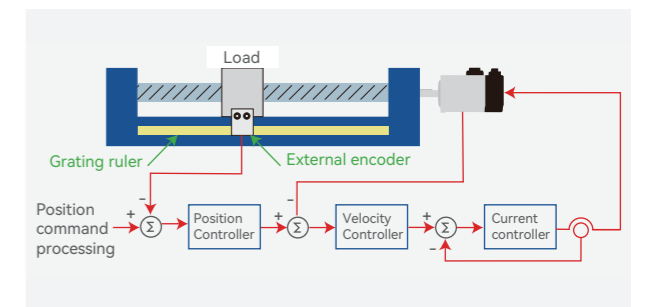
#### Quick Frequency Response

Frequency response of 3.5kHz, quicker system response and better precision.



#### Full closed loop control

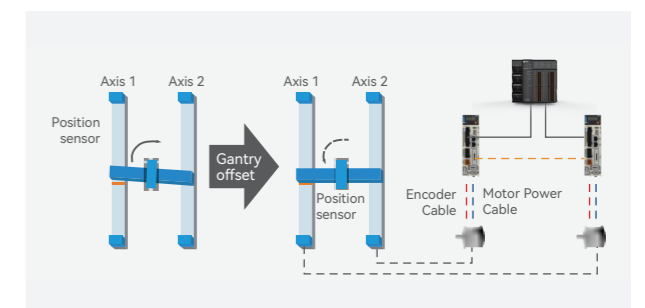
EL8 series servo drives support full closed loop control which can eliminate the position deviation due to mechanical gap, and precision will have an obvious improvement.



#### Gantry synchronization

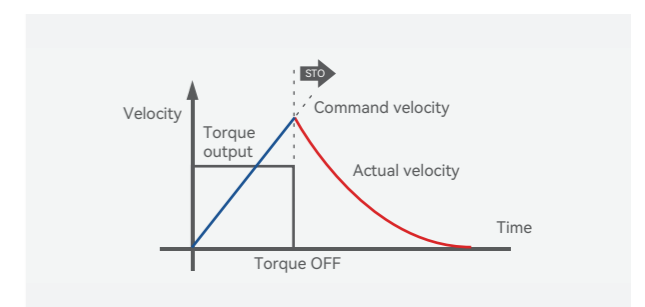
Gantry synchronization MIMO technique, breaking through foreign technological barrier.

EL8 series servo drive is able to realize axis synchronization and alignment automatically without input from master device.



#### Safe Torque Off (SIL3)

When Safe Torque Off is activated, internal circuit will cut off motor power supply immediately, guaranteeing operator and machine safety.



### Part Numbers

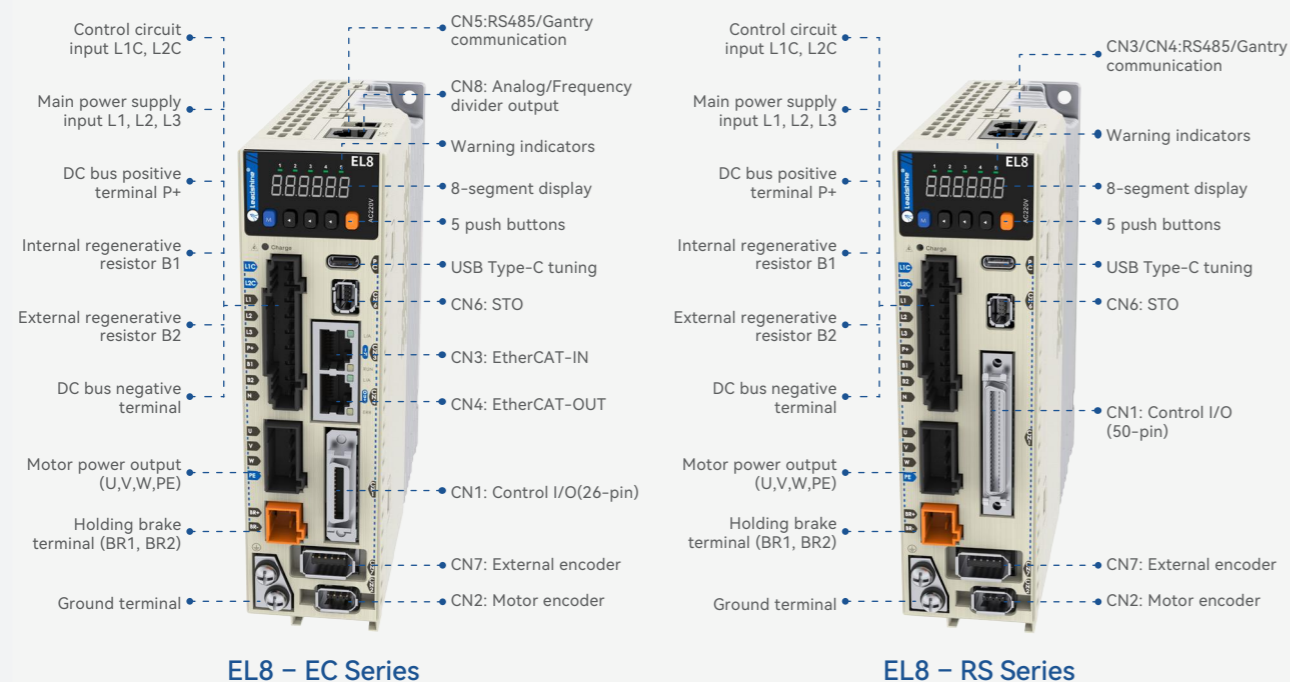
## EL8 - EC 400 F

Series Num		Version	
EL8	EL8 series	F	Full Functions

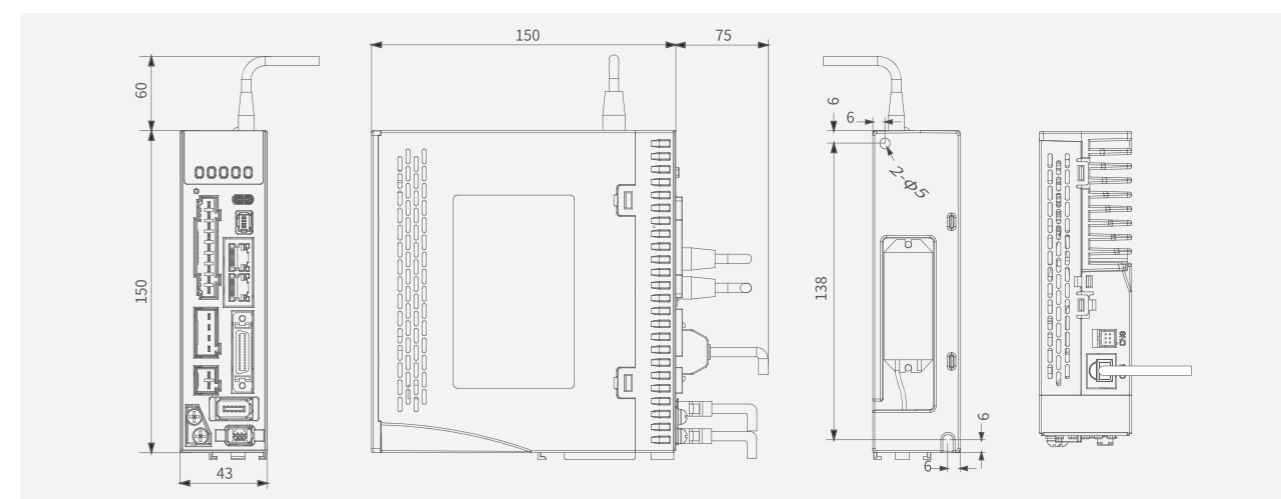
Command Source		Version			
EC	EtherCAT	400	400W	750	750W
RS	Modbus RTU/ Analog Input/ Pulse+Direction	1000	1000W	1500	1500W
		2000	2000W		

### Ports & Connectors



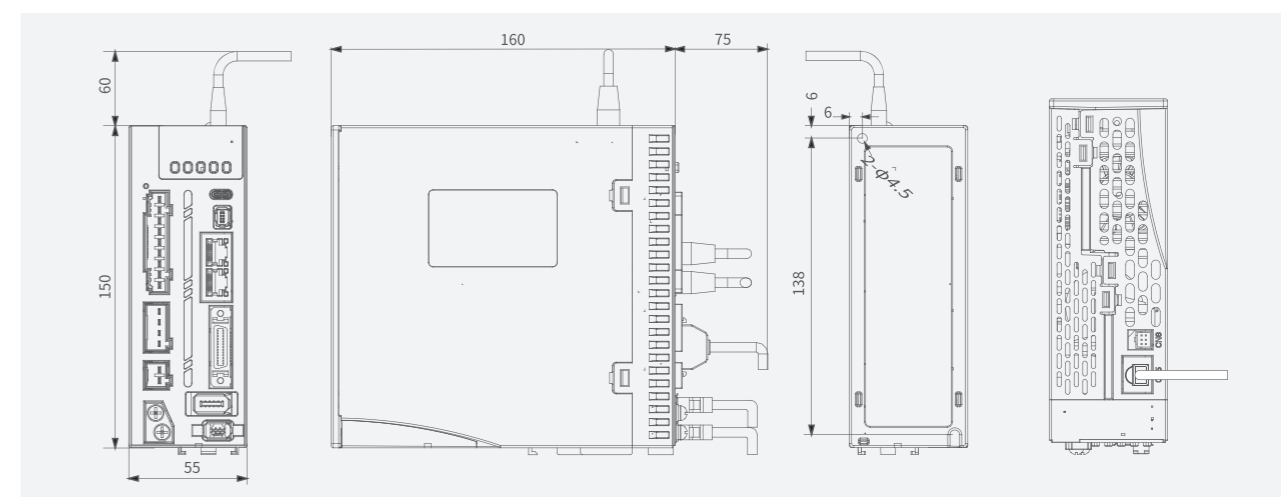
### 400W (AC 220V)

Unit: mm



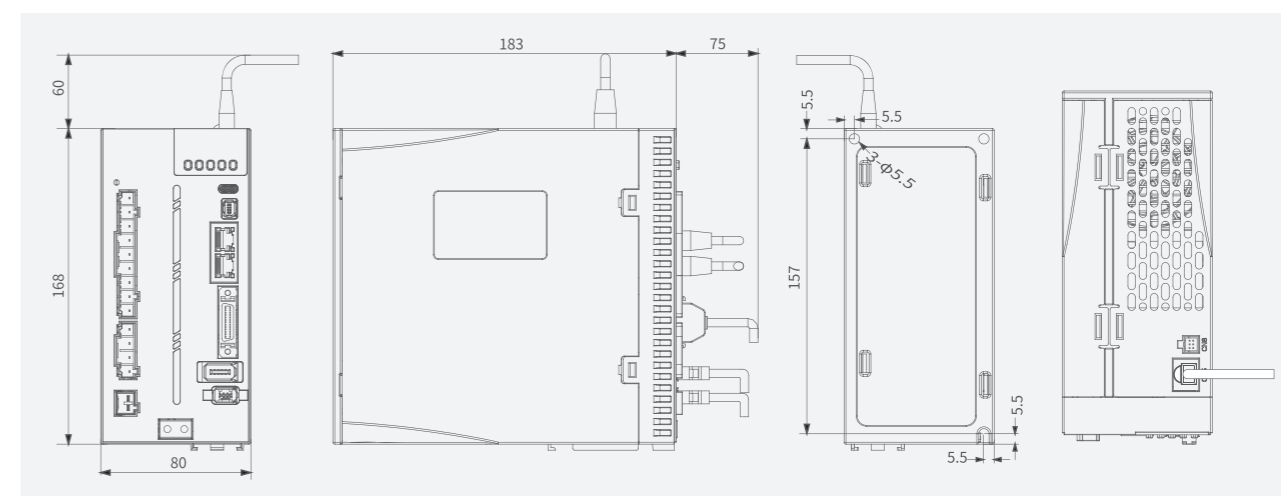
### 750W/1000W (AC 220V)

Unit: mm

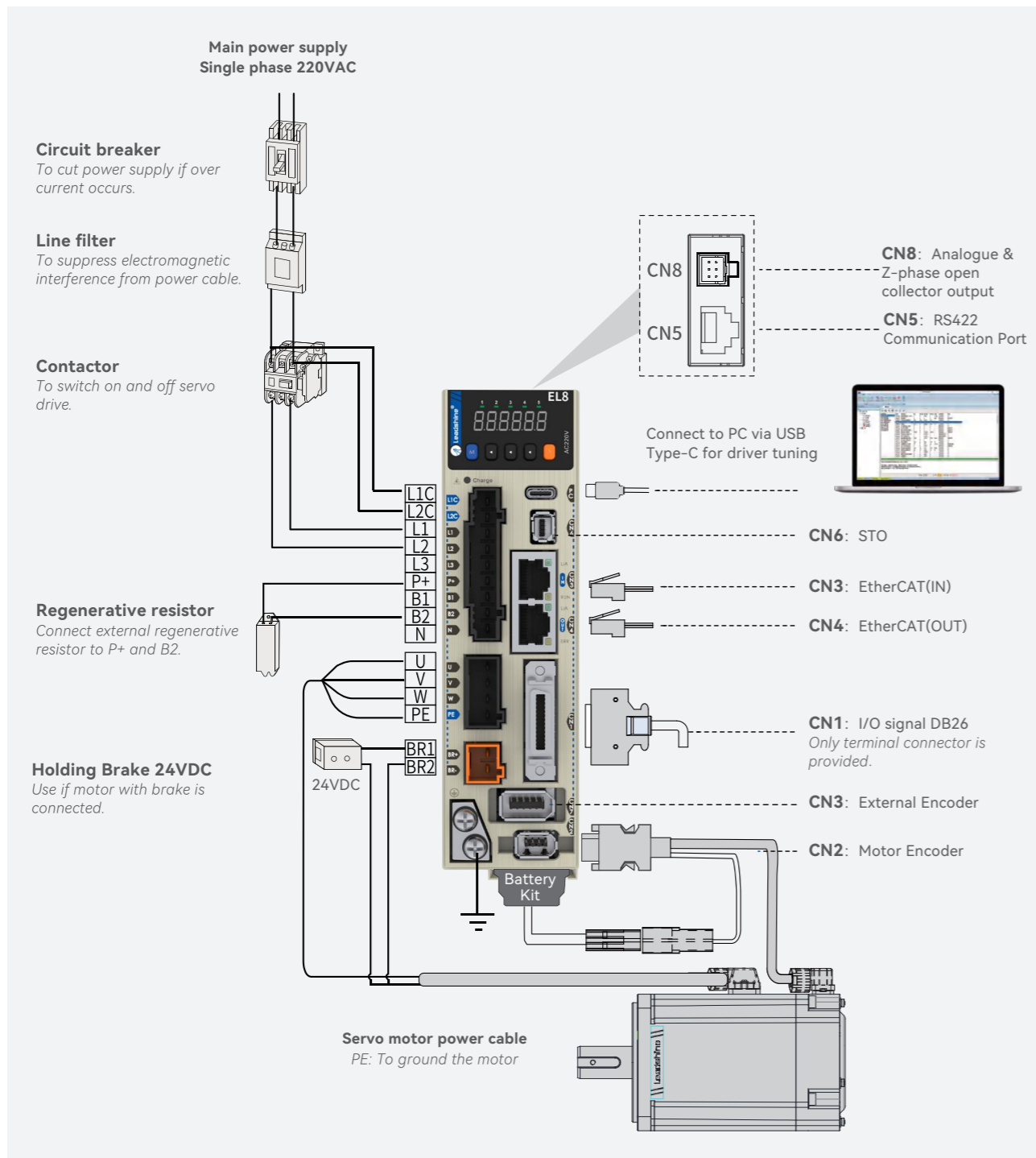


### 1500W/2000W (AC 220V)

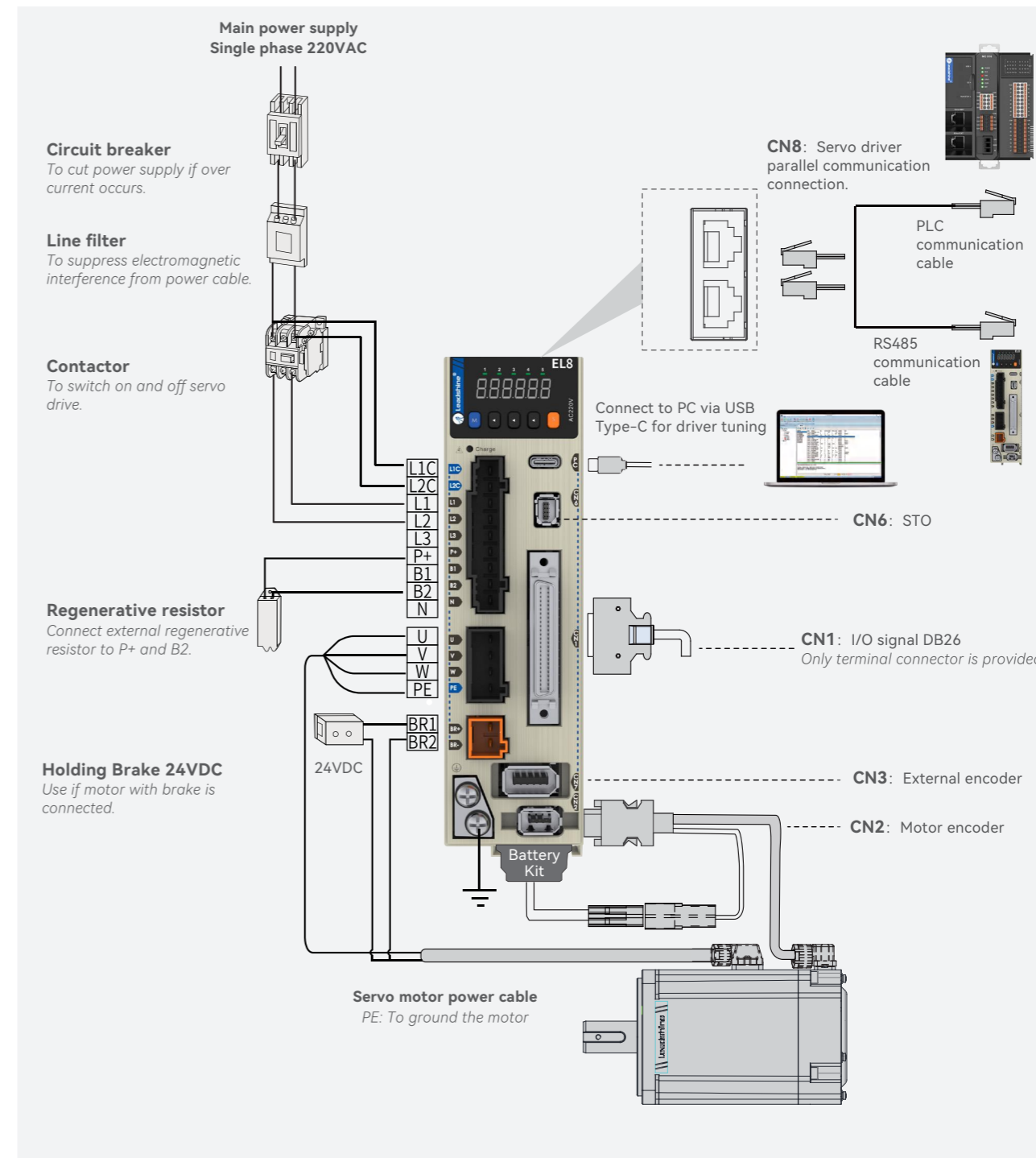
Unit: mm



### EL8-EC & Peripheral Wiring Diagram



### EL8-RS & Peripheral Wiring Diagram



**Specifications**

EL8 Series Drive	EL8-RS400F EL8-EC400F	EL8-RS750F EL8-EC750F	EL8-RS1000F EL8-EC1000F	EL8-RS1500F EL8-EC1500F	EL8-RS2000F EL8-EC2000F
Power Rating	400W	750W	1000W	1500W	2000W
Rated Current (A)	2.8	5.5	7.0	9.5	12
Peak Current (A)	9.3	16.9	21.2	31.1	36
Control circuit power supply	1-Ph AC 200V- 240VAC, -10% - +10%, 50/60Hz				
Main power supply	1-Ph/3-Ph AC 200V- 240VAC, -10% - +10%, 50/60Hz				
Dimension L*H*W(mm)	150*150*43	150*160*55		168*183*80	

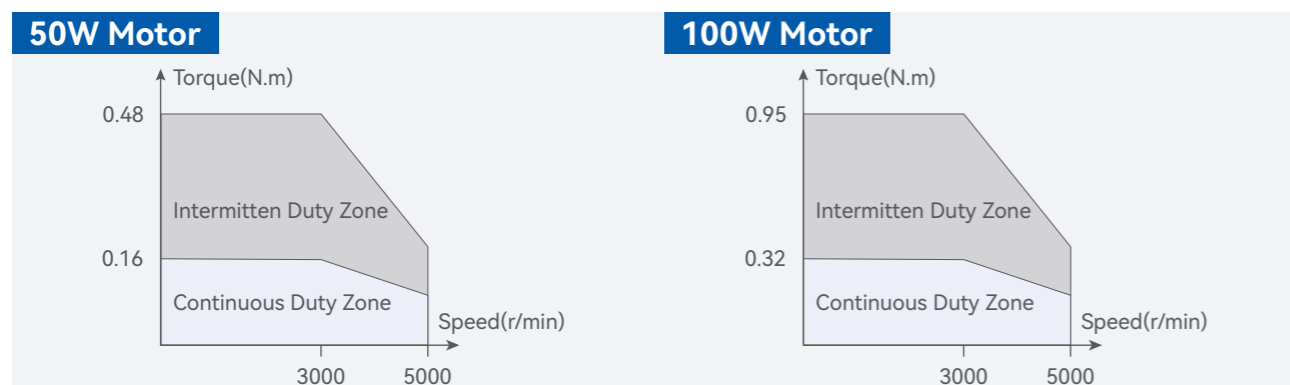
Ports	Descriptions
<b>EL8-RS</b>	
Low-speed pulse input	5V differential signal, 0-500kHz 24V differential signal, 0-200kHz
High-speed pulse input	5V differential signal, 0-4MHz
Analog I/O	3 analog inputs (AI1/AI2/AI3) , -10V~+10V, Max. voltage: ±12V 3 analog outputs (AO1/AO2) , -10V~+10V
Digital I/O	10 Digital Inputs (Supports common anode or cathode connection) 6 digital outputs (2 single ended, 4 double-ended)
<b>EL8-EC</b>	
Analog I/O	2 analog inputs (AI1/AI2) , -10V~+10V, Max. voltage: ±12V 2 analog outputs (AO1/AO2) , -10V~+10V
Digital I/O	8 Digital Inputs (Supports common anode or cathode connection) 3 Digital outputs (3 double-ended, DO1~DO3)
Safe Torque Off (STO)	Available for all EL8 series servo drives
External encoder	Internal holding brake. External relay not needed
Holding brake	Supports phase A/B/Z differential crossover frequency output Supports phase Z open collector crossover frequency output
Crossover Frequency Output	EtherCATModbus protocol, RJ45 port
Communication Port	Modify or read driver parameters without connecting to main power supply
USB Type-C	
<b>Control Mode (EL8-RS)</b>	
Control	1. External pulse train position control 2. JOG control 3. Closed loop position control 4. Velocity control 5. Torque control 6. Hybrid control: Position-Torque/Position-Velocity/Velocity-Torque

<b>Control Mode (EL8-EC)</b>	
Position	Profile Position Mode (PP)
	Cyclic Synchronous Position Mode (CSP)
	Homing Mode (HM)
Velocity	Profile Velocity Mode (PV)
	Cyclic Synchronous Velocity Mode (CSV)
Torque	Profile Torque Mode (PT)
	Cyclic Synchronous Torque Mode (CST)
<b>Control Mode(EL8-EC)</b>	
Feedback Method	Encoder: RS485 Protocol
Easy-to-use	One-click tuning, Single parameter tuning, Black box, Zero tracking control
Notch Filter	Mechanical resonance suppression. Supports up to 3 filters,50Hz~4000Hz
Vibration suppression	End vibration suppression
Alarm	Overcurrent. Overvoltage. Undervoltage. Overheat. Overload. Overtravel. Single-Phasing. Regenerative resistor error. Position deviation error. Encoder feedback error. Excessive braking rate. EEPROM error
Front Panel	5 push buttons, 8-segments display, 5 warning LEDs
Software	Driver tuning through Motion Studio Ver. 2.x.
Dynamic Brake	Internal dynamic brake
Position Comparison	42 position comparison outputs
<b>Environmental requirements</b>	
Temperature	Storage: -20-80°C (Condensation free); Not more than 72 hours if stored in over 65°C Installation: 0-55°C (Not frozen); Lower performance at over 45°C
Humidity	Under 90%RH (Condensation free)
Altitude	Max. altitude of 2000m; 100% performance at 1000m or below. Performance decreases by 1% with every increase of 100m from 1000m.
Vibration	Less than 0.5G (4.9m/s <sup>2</sup> ) 10-60Hz (non-continuous working)
IP ratings	IP20

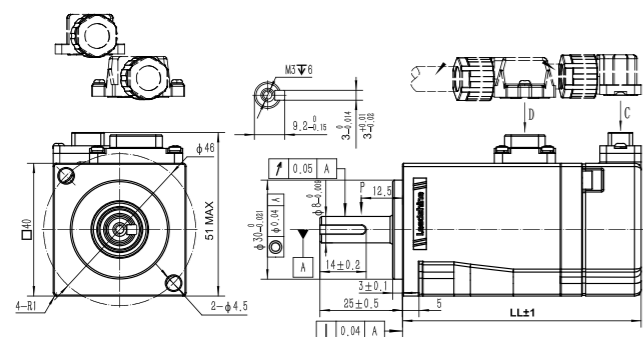
40mm Frame size & 50W~100W

Type Name	Frame Size (mm)	Brake	Voltage (VAC)	Power (W)	Speed (rpm)		Torque (Nm)		Current (Arms)		Permissible load to shaft (N)		Encoder	Inertia (kgm <sup>2</sup> *10 <sup>-4</sup> )	Weight (kg)	Motor Length (mm)				
					Rated	Max	Rated	Max	Rated	Max	Radial	Axial								
ELM1H-0050MA40E	□ 40	√	220	50	3000	5000	0.16	0.48	0.93	2.88	78	54	23-bit magnetic encoder	0.046	0.44	84				
ELM1H-0050MA40F		×												0.036	0.28	56.7				
ELM1H-0100MA40E		√												0.32	0.96	0.92	2.85	0.072	0.54	95
ELM1H-0100MA40F		×																		
ELM2H-0050LA40E		√		50			23-bit optical encoder	0.046	0.44	84										
ELM2H-0050LA40F		×						0.036	0.28	56.7										
ELM2H-0100LA40E		√						0.32	0.96	0.92				2.85	0.072	0.54	95			
ELM2H-0100LA40F		×																0.062	0.38	67.7

Speed-Torque characteristics



Dimensions

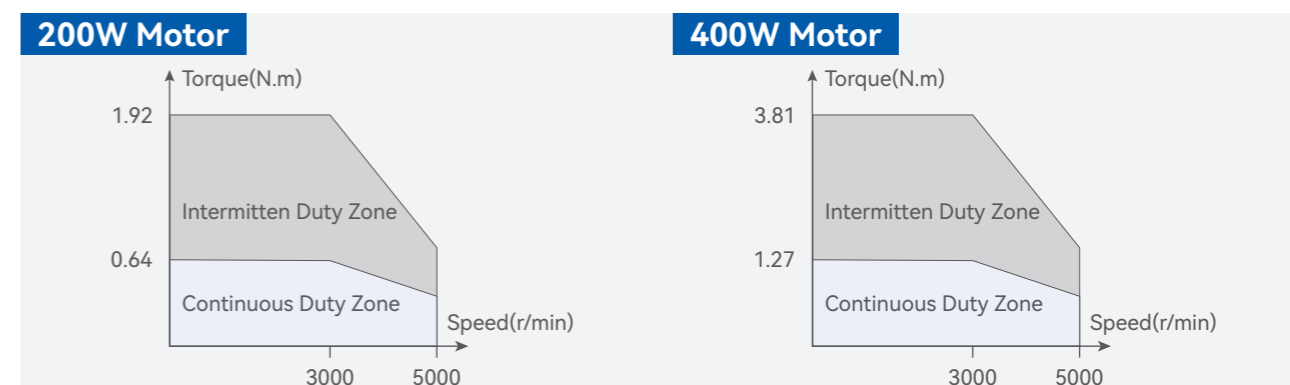


Motor model	LL
ELM*H-0050*A40E	84
ELM*H-0050*A40F	56.7
ELM*H-0100*A40E	95
ELM*H-0100*A40F	67.7

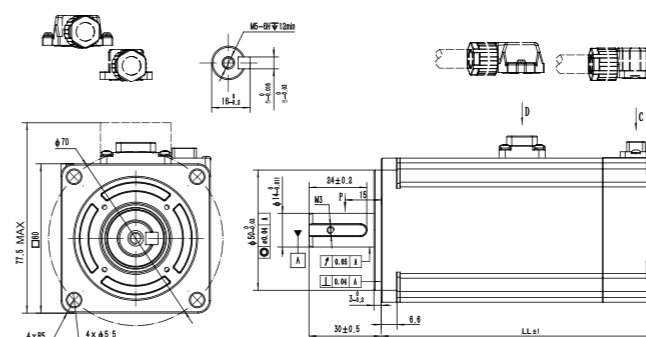
60mm Frame size & 200W~400W

Type Name	Frame Size (mm)	Brake	Voltage (VAC)	Power (W)	Speed (rpm)		Torque (Nm)		Current (Arms)		Permissible load to shaft (N)		Encoder	Inertia (kgm <sup>2</sup> *10 <sup>-4</sup> )	Weight (kg)	Motor Length (mm)
					Rated	Max	Rated	Max	Rated	Max	Radial	Axial				
ELM1H-0200MA60E	□ 60	√	220	200	3000	5000	0.64	1.92	1.5	4.5	245	74	23-bit magnetic encoder	0.3	1.3	101.1
ELM1H-0200MA60F		×												0.28	1.0	71.8
ELM1H-0400MA60E		√												0.58	1.55	118.1
ELM1H-0400MA60F		×														
ELM2H-0200LA60E		√		200			23-bit optical encoder	0.3	1.3	101.1						
ELM2H-0200LA60F		×						0.28	1.0	71.8						
ELM2H-0400LA60E		√						0.58	1.55	118.1						
ELM2H-0400LA60F		×												0.56	1.3	88.8

Speed-Torque characteristics



Dimensions

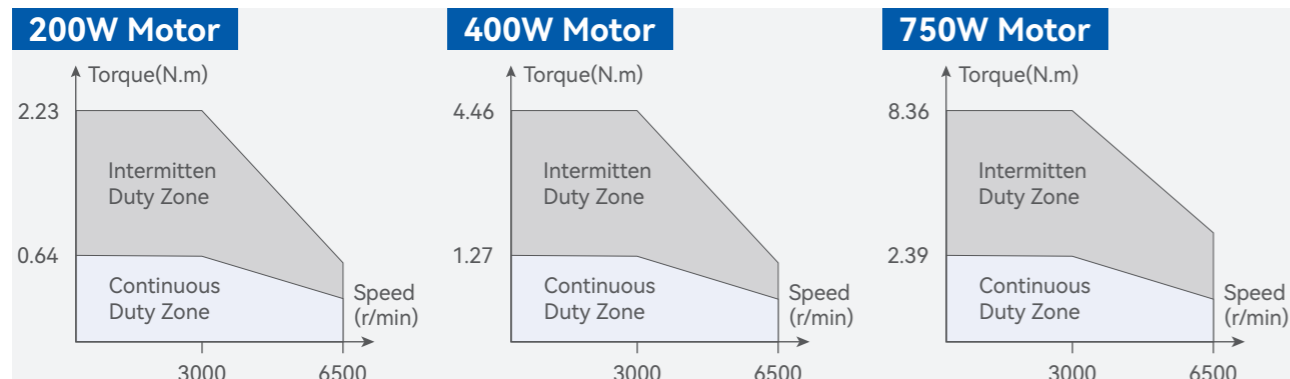


Motor model	LL
ELM*H-0200*A60E	101.1
ELM*H-0200*A60F	71.8
ELM*H-0400*A60E	118.1
ELM*H-0400*A60F	88.8

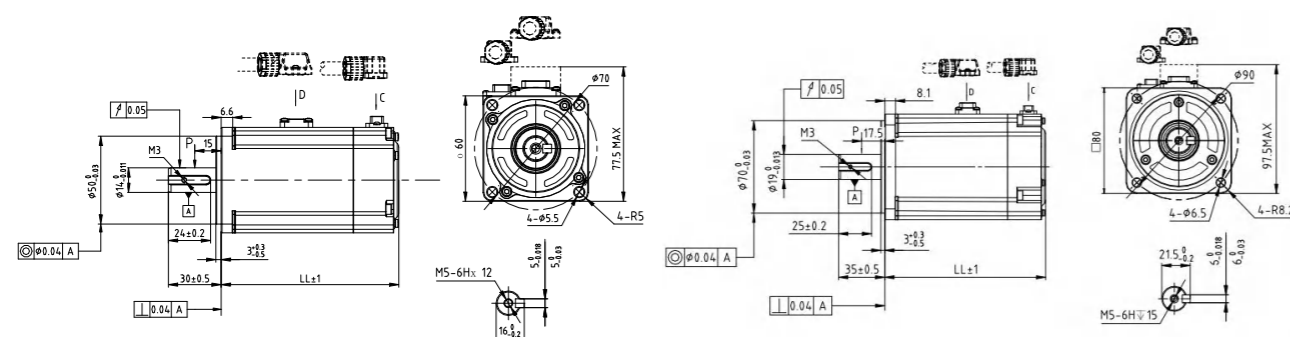
200W~750W

Type Name	Frame Size (mm)	Brake	Voltage (VAC)	Power (W)	Speed (rpm)		Torque (Nm)		Current (Arms)		Permissible load to shaft (N)		Encoder	Inertia (kgm <sup>2</sup> *10 <sup>-4</sup> )	Weight (kg)	Motor Length (mm)
					Rated	Max	Rated	Max	Rated	Max	Radial	Axial				
ELM2L-0200LA60E	□ 60	√	220	200	3000	6500	0.64	2.23	1.5	5.7	245	74	23-bit optical encoder	0.15	1.2	101.2
ELM2L-0200LA60F		x														
ELM2L-0400LA60E		√														
ELM2L-0400LA60F		x														
ELM2L-0750LA80E	□ 80	√	220	750	3000	6500	2.39	8.36	4.2	16.1	392	147	23-bit optical encoder	0.79	2.74	121.9
ELM2L-0750LA80F		x														

Speed-Torque characteristics



Dimensions



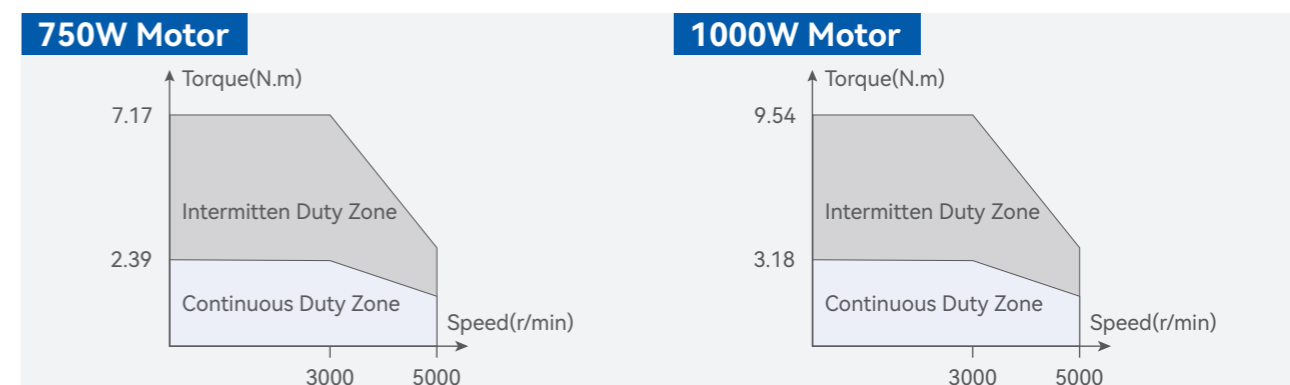
Motor model	LL	Motor model	LL
ELM2L-0200LA60E	101.2	ELM2L-0400LA60E	118.2
ELM2L-0200LA60F	71.8	ELM2L-0400LA60F	88.8

Motor model	LL
ELM2L-0750LA80E	121.9
ELM2L-0750LA80F	90.9

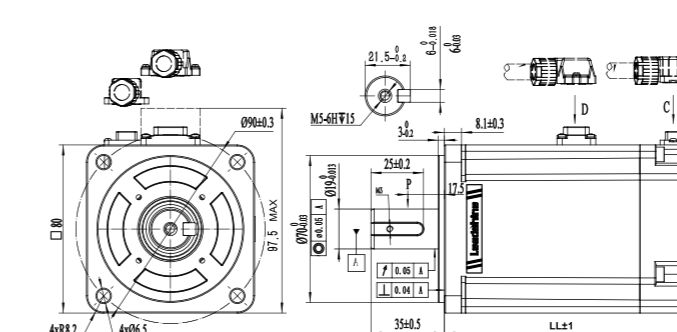
80mm Frame size & 750W~1000W

Type Name	Frame Size (mm)	Brake	Voltage (VAC)	Power (W)	Speed (rpm)		Torque (Nm)		Current (Arms)		Permissible load to shaft (N)		Encoder	Inertia (kgm <sup>2</sup> *10 <sup>-4</sup> )	Weight (kg)	Motor Length (mm)
					Rated	Max	Rated	Max	Rated	Max	Radial	Axial				
ELM1H-0750MA80E	□ 80	√	220	750	3000	5000	2.39	7.17	4.1	13.4	392	147	23-bit magnetic encoder	1.65	2.7	121.9
ELM1H-0750MA80F		x														
ELM1H-1000MA80E		√														
ELM1H-1000MA80F		x														
ELM2H-0750LA80E	□ 80	√	220	750	3000	5000	2.39	7.17	4.1	13.4	392	147	23-bit optical encoder	1.65	2.7	121.9
ELM2H-0750LA80F		x														
ELM2H-1000LA80E		√														
ELM2H-1000LA80F		x														

Speed-Torque characteristics



Dimensions



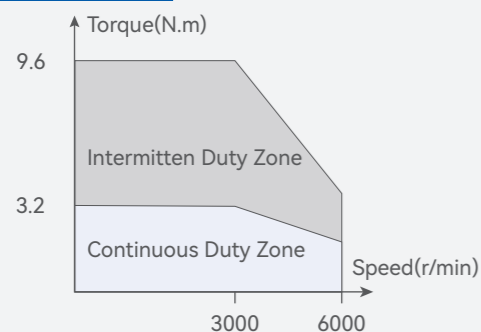
Motor model	LL
ELM*H-0750*A80E	121.9
ELM*H-0750*A80F	90.9
ELM*H-1000*A80E	134.9
ELM*H-1000*A80F	103.9

**100mm Frame size & 1000W~1500W**

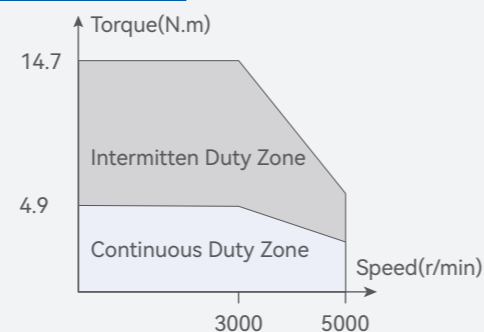
Type Name	Frame Size (mm)	Brake	Voltage (VAC)	Power (W)	Speed (rpm)		Torque (Nm)		Current (Arms)		Permissible load to shaft (N)		Encoder	Inertia (kgm <sup>2</sup> *10 <sup>-4</sup> )	Weight (kg)	Motor Length (mm)
					Rated	Max	Rated	Max	Rated	Max	Radial	Axial				
ELM2L-1000LA100E-H	□ 100	√	220	1000	6000	3.2	9.6	6.5	19.5	490	98	23-bit optical encoder	2.63	5.9	194	
ELM2L-1000LA100F-H		x											2.43	4.6	154	
ELM2L-1500LA100E-H		√		1500	5000	4.9	14.7	8	25.5				3.803	7.1	218	
ELM2L-1500LA100F-H		x											3.503	5.8	178	

*Speed-Torque characteristics*

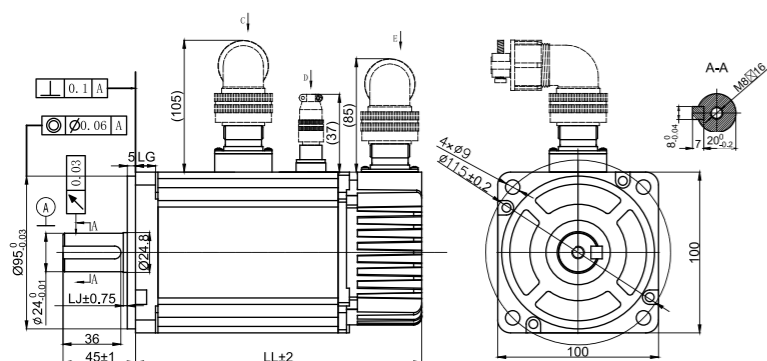
**1000W Motor**



**1500W Motor**



*Dimensions*



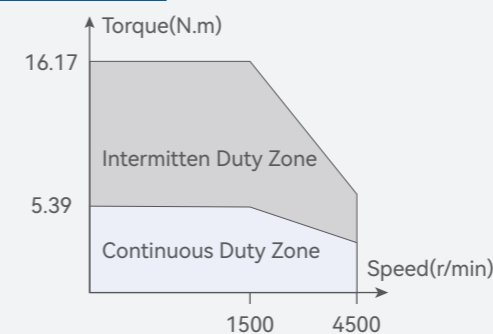
Motor model	LL
ELM2L-1000LA100E-H	194
ELM2L-1000LA100F-H	154
ELM2L-1500LA100E-H	218
ELM2L-1500LA100F-H	178

**130mm Frame size & 850W~1800W**

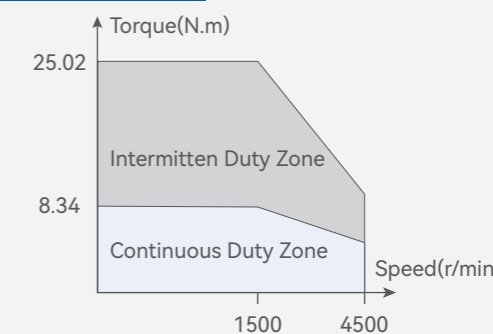
Type Name	Frame Size (mm)	Brake	Voltage (VAC)	Power (W)	Speed (rpm)		Torque (Nm)		Current (Arms)		Permissible load to shaft (N)		Encoder	Inertia (kgm <sup>2</sup> *10 <sup>-4</sup> )	Weight (kg)	Motor Length (mm)
					Rated	Max	Rated	Max	Rated	Max	Radial	Axial				
ELM1H-0850MD130E-H	□ 130	√	220	850			5.39	16.17	6.8	20.4	490	98	23-bit magnetic encoder	14.8	6.9	153.5
ELM1H-0850MD130F-H		x												12.5	5.5	126
ELM1H-1300MD130E-H		√		1300	1500	4500	8.34	25.02	9.3	27.9	686	343		21	8.4	171.5
ELM1H-1300MD130F-H		x												18.7	7.0	144
ELM1H-1800MD130E-H		√		1800			11.5	28.8	11.2	29.3	980	392		26.1	9.7	189.5
ELM1H-1800MD130F-H		x												23.8	8.3	162
ELM1M-1500MA130E-H		√		1500	3000	5500	4.9	12.5	6.8	17.1	490	98		14.8	6.9	153.5
ELM1M-1500MA130F-H		x												12.5	5.5	126
ELM2H-0850LD130E-H		√		850			5.39	16.17	6.8	20.4	490	98		14.8	6.9	153.5
ELM2H-0850LD130F-H		x												12.5	5.5	126
ELM2H-1300LD130E-H		√		1300	1500	4500	8.34	25.02	9.3	27.9	686	343		21	8.4	171.5
ELM2H-1300LD130F-H		x												18.7	7.0	144
ELM2H-1800LD130E-H		√		1800			11.5	28.8	11.7	29.3	980	392		26.1	9.7	189.5
ELM2H-1800LD130F-H		x												23.8	8.3	162

*Speed-Torque characteristics*

**850W Motor**



**1300W Motor**









● Headquarters in Shenzhen



● Shanghai Intelligent Industry Park

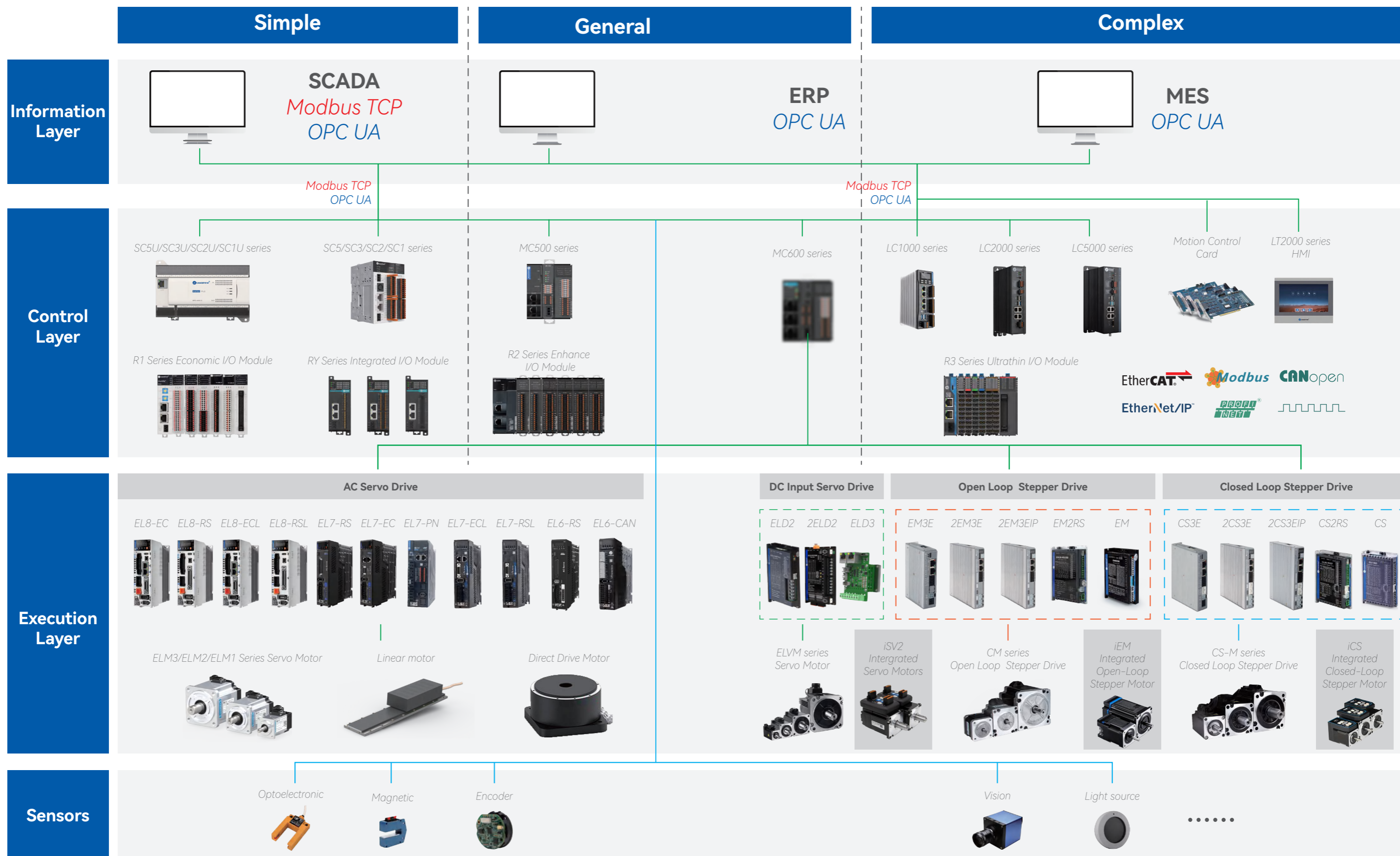


● Production base in Shenzhen

- **Founded in 1997**
- **Public Listed Company in China (002979.SZ)**
- **Dedication in Motion Control**  
Stepper/Servo systems, Motion Controllers, PLC  
Control systems, I/O Modules, Encoders
- **A leading supplier of motion control products and solutions in the world**
- **Customer Oriented, Technology Oriented, Forever Improving, Sharing of Success**

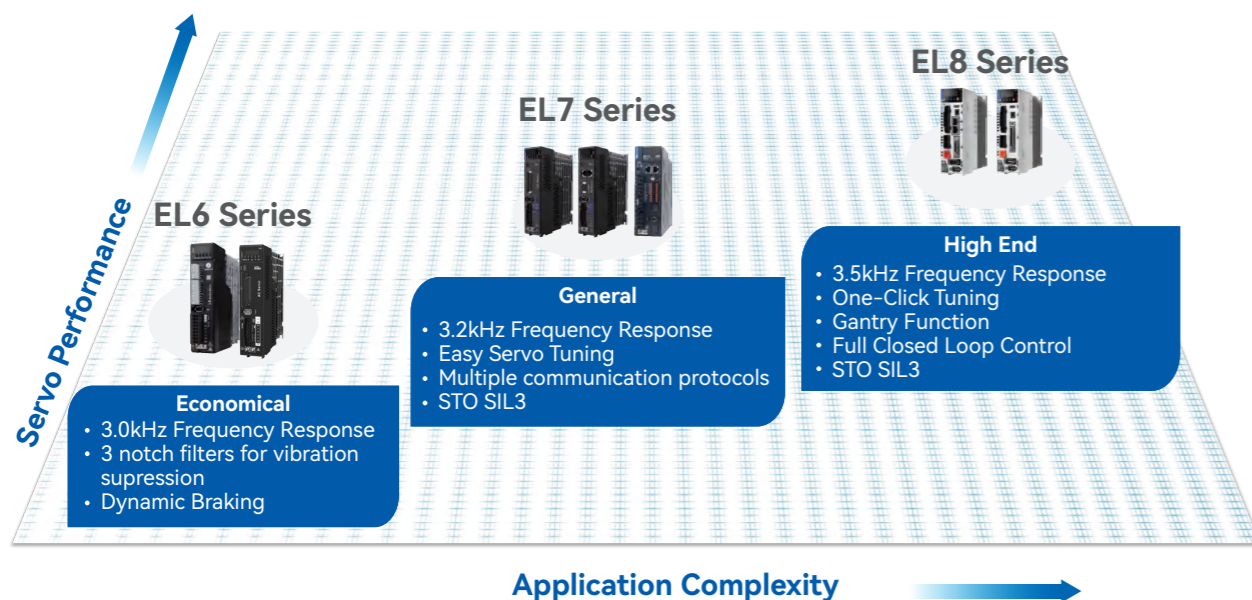
25+ Experience   400+ R&D Engineers   5 Subsidiaries   60+ Countries Clients   10000+ Global Partners   30million+ Installed Axes

# Leadshine Motion Control Total Product System

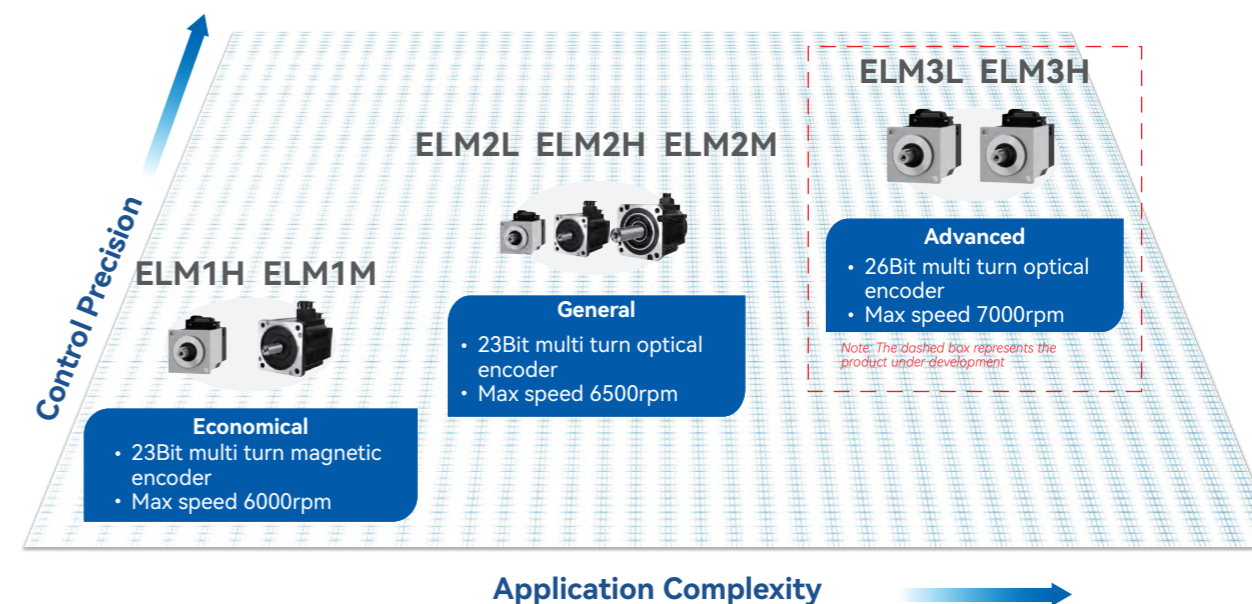


# Leadshine Servo Product

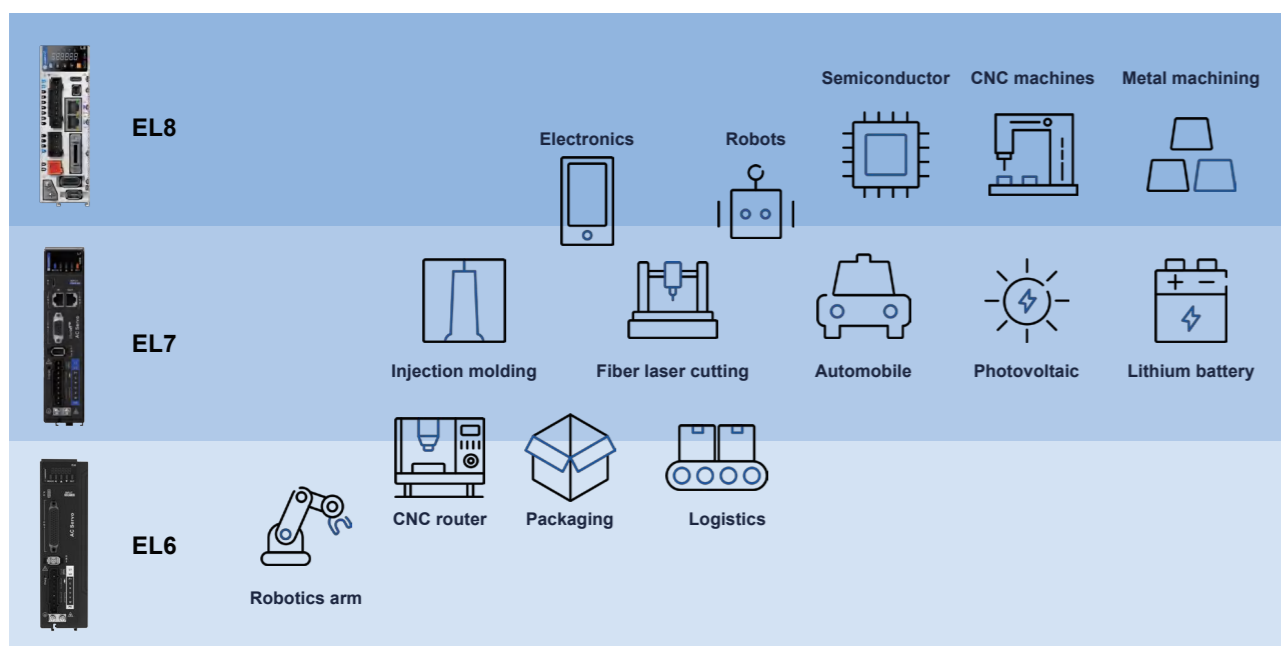
## ● Servo Drive Series



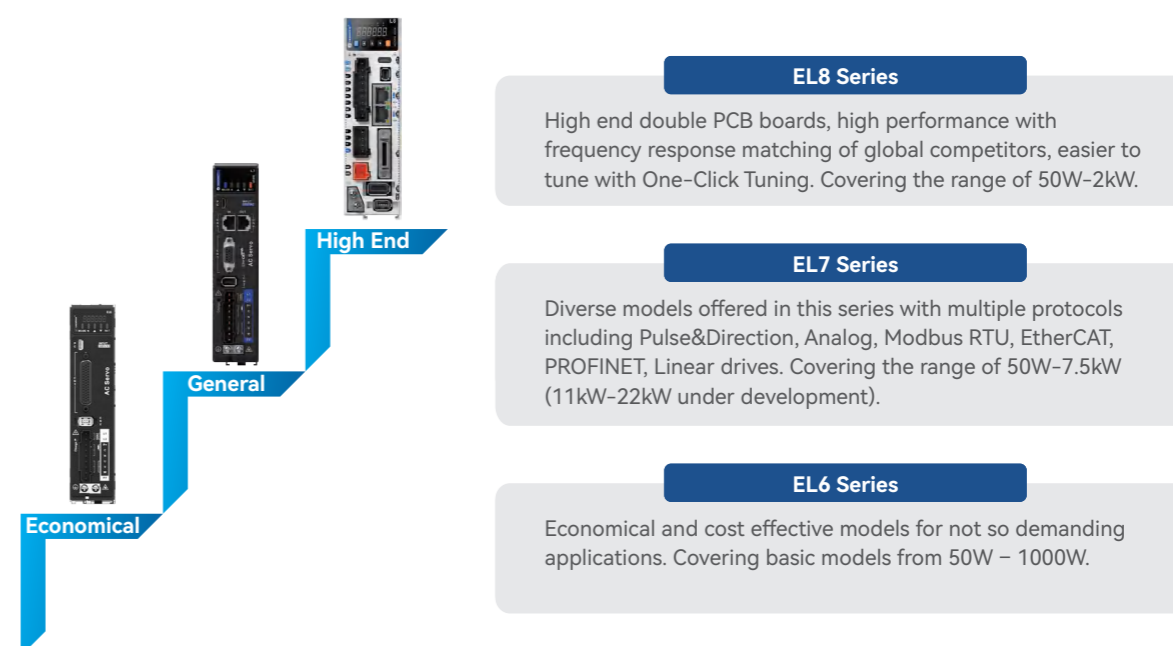
## ● Servo Motor Series



## ● Typical Applications



## ● Simple Introduction



# Leadshine Servo Products Quick Selection

Servo Drive	Model	Power (W)	Voltage (VAC)	Dimensions (mm)	Weight (kg)	Command Source			Command Source			STO	Encoder Output	Brake Output	Digital Inputs (Points)	Digital Outputs (Points)	Analogue Input	Analogue Output	Matched Servo Motors
						Pulse+Dir	Analog Input		RS485	EtherCAT	CANopen								
AC Servo Drive EL8 Series	EL8-EC400F	400	1 Phase/ 3 Phase 220	150*150*43	1						√	√		8	3	2	2	ELM1 and ELM2 Servo Motors Please refer to page 84 to 87 for more information on matching servo motors	
	EL8-RS400F										√		√	√	√	10	6		3
	EL8-EC750F	750		150*160*55	1.2	√	√		√				√	8	3	2	2		
	EL8-RS750F					√	√		√	√		√	√	√	10	6	3		2
	EL8-EC1000F	1000		183*160*80	2							√	√		8	3	2		2
	EL8-RS1000F					√	√		√	√		√	√	√	10	6	3		2
	EL8-EC1500F	1500		183*160*80	2							√	√		8	3	2		2
	EL8-RS1500F					√	√		√	√		√	√	√	10	6	3		2
	EL8-EC2000F	2000		183*160*80	2							√	√		8	3	2		2
EL8-RS2000F	√		√				√	√		√	√	√	10	6	3	2			
AC Servo Drive EL7 Series - 220VAC	EL7-RS400P	400	1 Phase 220	175*156*40	0.9	√	√		√			√		8	5	2	1		
	EL7-RS750P	750		175*156*50	1.1	√	√		√			√		8	5	2	1		
	EL7-RS1000P	1000		175*156*50	1.2	√	√		√			√		8	5	2	1		
	EL7-RS1500P	1500	1 Phase/ 3 Phase 220	175*156*80	2.3	√	√		√			√		8	5	2	1		
	EL7-RS2000P	2000			2.3	√	√		√			√		8	5	2	1		
AC Servo Drive EL7 Series - 400VAC	EL7-RS750PT	750	3 Phase 400	179*175*55	1.3	√	√		√			√		8	5	2	1		
	EL7-RS1000PT	1000				√	√		√			√		8	5	2	1		
	EL7-RS1500PT	1500				√	√		√			√		8	5	2	1		
	EL7-RS2000PT	2000		179*175*80	1.9	√	√		√			√		8	5	2	1		
	EL7-RS3000PT	3000				√	√		√			√		8	5	2	1		
	EL7-RS4400PT	4400				√	√		√			√		8	5	2	1		
	EL7-RS5500PT	5500		230*250*90	3.3	√	√		√			√		8	5	2	1		
	EL7-RS7500PT	7500				√	√		√			√		8	5	2	1		
AC Servo Drive EL7 Series - 220VAC	EL7-EC400N	400	1 Phase 220	175*156*40	0.9					√	√		4	3					
	EL7-EC750N	750		175*156*50	1.2					√	√		4	3					
	EL7-EC1000N	1000	1 Phase/ 3 Phase 220	179*175*55	2.3					√	√		4	3					
	EL7-EC1500N	1500				√	√		4	3									
	EL7-EC2000N	2000				√	√		4	3									
AC Servo Drive EL7 Series - 400VAC	EL7-EC750NT	750	3 Phase 400	179*175*55	1.3					√	√		4	3					
	EL7-EC1000NT	1000				√	√		4	3									
	EL7-EC1500NT	1500				√	√		4	3									
	EL7-EC2000NT	2000		179*175*80	1.9	√	√		√	√		4	3						
	EL7-EC3000NT	3000				√	√		√	√		4	3						
	EL7-EC4400NT	4400				√	√		√	√		4	3						
	EL7-EC5500NT	5500		230*250*90	3.3	√	√		√	√		4	3						
	EL7-EC7500NT	7500				√	√		√	√		4	3						
AC Servo Drive EL6 Series	EL6-RS400P	400	1 Phase 220	175*156*40	0.9	√			√			√	√	8	5				
	EL6-CAN400Z										√			4	3				
	EL6-RS750P	750		175*156*50	1.1	√			√			√	√	8	5				
	EL6-CAN750Z										√			4	3				
	EL6-RS1000P	1000		175*156*50	1.2	√			√			√	√	8	5				
EL6-CAN1000Z									√			4	3						

Applications

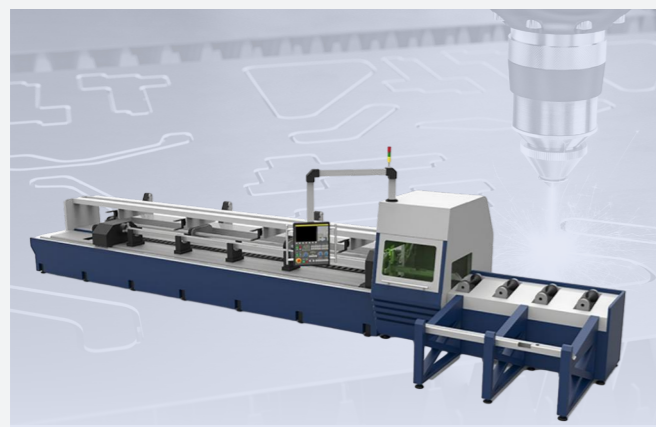
CNC Router



Product Advantages:

- High torque servo motor with 3 times overloading capability
- 23-bit encoders with great impact resistant and harsh environment resistance
- Servo drive optimized for CNC router applications
- Comes with safety features such as Safe Torque Off and Dynamic Braking
- Servo Motors maximum torque ranging from 0.105Nm up to 119Nm

Fiber Laser Cutting



Product Advantages:

- Great Compatibility with renowned laser cutting controller from FScut, Weihong, Beckhoff, Empower, etc.
- Available with most mainstream communication protocols (EtherCAT, Modbus RTU, PROFINET)
- Accurate positioning of 0.02mm and precision up to 0.01mm
- Easy servo tuning features to assist users in setting up the servo systems
- Robust and compact servo motors with high dust- and waterproof ratings



Wafer Cutting

- Full Closed Loop Control function to realize high accuracy control and real time compensation for lead screw wear.
- Real time control using EtherCAT/PROFINET servo drives.
- Easy-to-use, low maintenance and high reliability.



Automated Battery Lamination

- Linear Motors, Direct Drive Motors and Rotary Servo Motors are available.
- Production cycle time per part as low as 0.55s.
- High accuracy and precision motion control with servo drive frequency response of 3.5kHz



Semiconductor Wafer Cleaning

- High following capability with servo frequency response up to 3.5kHz
- Easy servo tuning features for notch filter settings and anti-vibration tunings
- Industrial Ethernet Standard with communication rate up to 100Mbps and compatible with any mainstream PLCs.