AC Servos elmatic

MOTION CONTROL

Dynamic and precise movement at a low price!

- Wide range of models (0.1 - 11 kW)
- Simple setup
- Absolute encoder 23 bit
- Response bandwidth 1,3 kHz
- EtherCAT
- IP65
- Up to 100 axis
- 3-times overload
- Simple installation

Elmark Automatyka S.A.
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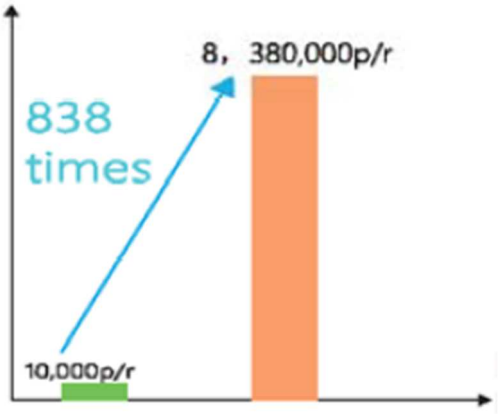
Functionality

A servo drive is a motion control system consisting of a servo motor, a servo drive with encoder used as a closed-loop feedback element. They are used in many industrial automation solutions, i.e. production lines or machines. Servo drives are used to carry out precise control of rotational or, less often, linear motion.

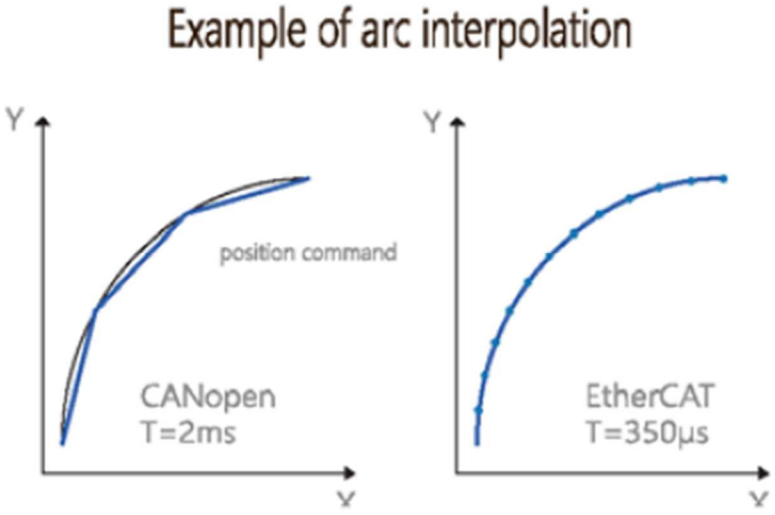
Elmatic servo drives have **built-in vibration damping functions**, which allows to reduce unfavorable vibrations in the system, which translates into improved accuracy. Particularly useful in dynamic applications for manipulating large dimensions.

Similar products | Elmatic Servo

23 bit encoder with a resolution of 8,380,000 p / r, can store up to 65,536 revolutions. Low vibration of the servo motor and high precision of maintaining a stable speed, it is perfect for applications where high positioning precision and high torque are required, such as robots, threading centers, manipulators, engraving machines, milling machines, etc.



The use of the fast **EtherCAT** protocol allows to achieve a much more precise motion path, thanks to the high sampling rate and fast response time, even **from 125 us**. The perfect solution for **milling** and **engraving** applications where proper path shape is important.



Achieving precise synchronization via EtherCAT. The adapted distributed clock allows up to 300 devices to be connected over a distance of 120 m, leaving the clock pulse at 15 us with a deviation of ± 20 ns.

Advantages of the Elmatic solution:

- Wide range of power: 100W - 11kW,
- Speed loop bandwidth 1.3 kHz (response time to control commands),
- Maximum encoder resolution up to 23 bit, corresponding to 0.15 arc/s,
- EtherCAT bus can simultaneously handle up to 100 axes within 1 ms,
- Maximum rotation speed up to 5000 rpm,
- The servo drive supports auto-learning based on the encoder angle reading, better adaptation to supported servo motors,
- Miniaturization and low weight,
- Low inertia,
- Overload capacity of low power servo drives (below 2 kW) - 3 times, medium and large (over 2 kW) - 2.5 times,
- Fully enclosed self-cooling, IP65 standard,
- Class F insulation,
- V15 vibration class,

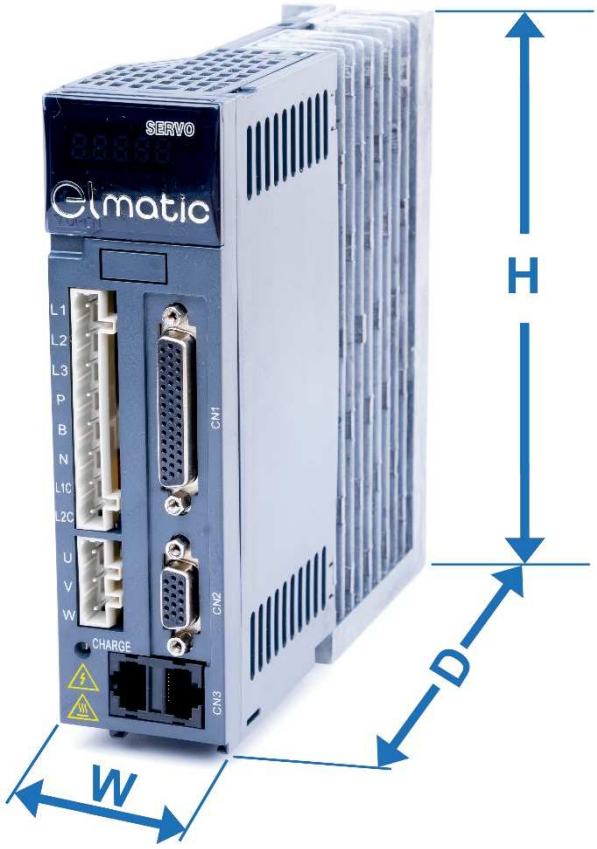
Offer

Elmatic servo drives (pulse type / EtherCAT)

Model	Input voltage	Rated output power (kW)	Rated output current (A)	Dimensions (mm)		
				H	D	W
EMD100-10A-2(0□)	1/3 phase 230V	0,1	1,6	168	168	45
EMD100-40A-2(0□)		0,4	2,8	168	168	45
EMD100-75A-2(0□)		0,75	5,5	168	168	45
EMD100-100A-2(0□)		1	7,6	168	168	70
EMD100-150A-2(0□)		1,5	9,6	168	168	70
EMD100-200A-2(0□)		2	11,6	168	168	70
EMD100-150A-4(0□)	3 phase 400V	1,5	4,6	168	168	70
EMD100-200A-4(0□)		2	6	168	168	70
EMD100-300A-4(0□)		3	9	260	200	88,5
EMD100-450A-4(0□)		4,5	12,9	260	200	88,5
EMD100-550A-4(0□)		5,5	16,5	260	200	88,5
EMD100-750A-4(0□)		7,5	25,7	290	202	135,5
EMD100-1100A-4(0□)		11	33	290	202	135,5
□ - 0: pulse type, 2: EtherCAT						

EMD100	100A	2	(00)
①	②	③	④

No.	Key	Description
①	Product line	Elmatic Servodrive
②	Rated power	10A: 100W 100A: 1kW
③	Input voltage	2: 1/3-phase AC 230V 4: 3-phase AC 400V
④	Interface	00: Pulse type 02: EtherCAT



Serwosilniki Elmatic

Model	Rated output power (kW)	Frame size (mm)	Rated torque (Nm)	Rated speed (rpm)	Encoder
EMM-40KP10A30P□YYB	0,1	40	0,32	3000	23 bit ABS
EMM-60KP40A30P□YYB	0,4	60	1,27	3000	23 bit ABS
EMM-80KP75A30P□YYB	0,75	80	2,4	3000	23 bit ABS
EMM-130SP85A15P□YYB	0,85	130	5,39	1500	23 bit ABS
EMM-90KP75A30P□YYB	0,75	90	2,4	3000	23 bit ABS
EMM-90KP73A20P□YYB	0,73	90	3,5	2000	23 bit ABS
EMM-90KP100A25P□YYB	1	90	4	2500	23 bit ABS
EMM-110KP120A30P□YYB	1	110	4	3000	23 bit ABS
EMM-110KP180A30P□YYB	1,5	110	6	3000	23 bit ABS
EMM-130SP100A20P□YYB	1	130	5	2000	23 bit ABS
EMM-130SP150A20P□YYB	1,5	130	7,7	2000	23 bit ABS
EMM-130SP130A25P□YYD	1,5	130	5	2500	23 bit ABS
EMM-130SP150A15P□YYD	1,5	130	10	1500	23 bit ABS
EMM-130SP150A25P□YYD	1,5	130	6	2500	23 bit ABS
EMM-130SP200A25P□YYB	2	130	7,7	2500	23 bit ABS
EMM-130SP200A20P□YYB	2	130	10	2000	23 bit ABS
EMM-130SP200A25P□YYD	2	130	7,7	2500	23 bit ABS
EMM-130SP200A20P□YYD	2	130	10	2000	23 bit ABS
EMM-130SP230A15P□YYD	2,3	130	15	1500	23 bit ABS
EMM-130SP300A20P□YYD	3	130	15	2000	23 bit ABS
EMM-180SP300A15T□YYD	3	180	19	1500	2500 p/r INC
EMM-180SP450A15T□YYD	4,5	180	28	1500	2500 p/r INC
EMM-180SP550A15P□YYD	5,5	180	35	1500	23 bit ABS
EMM-180SP750A15P□YYD	7,5	180	48	1500	23 bit ABS
EMM-200SP750A15P□YYD	11	200	70	1500	23 bit ABS

□ - A: without brake, B: with brake
Every servo motor have added 3m long power and encoder cables.

EMM	60	KP	40A	30	D	A	Y	Y	B
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

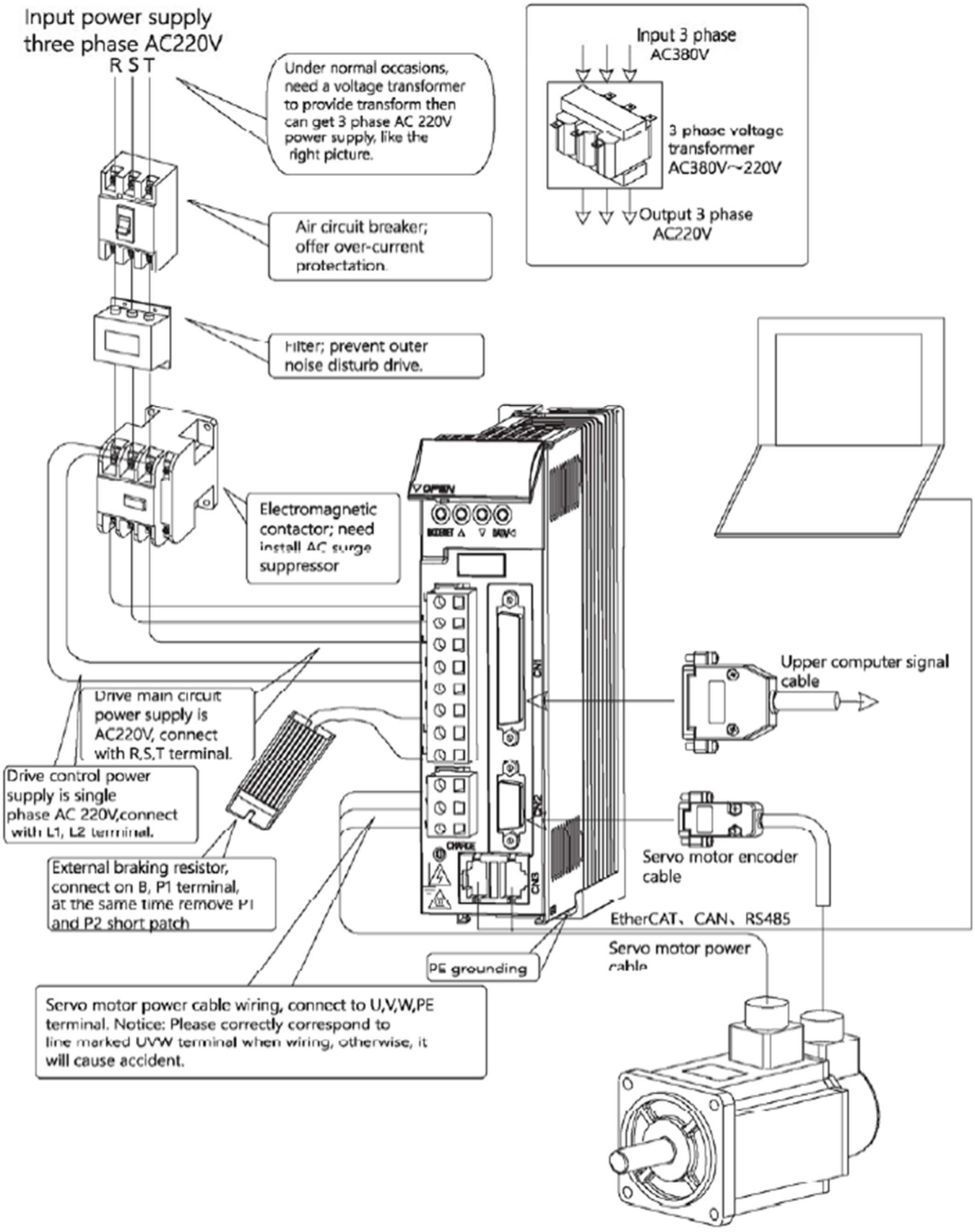
No.	Key	Description
①	Product line	Elmatic servo motors
②	Frame size	60: 60 mm 130: 130 mm
③	Series	KP: Low inertia SP: Medium inertia HP: High inertia
④	Rated power	10A: 100W 100A: 1kW
⑤	Rated speed	15: 1500 rpm 30: 3000 rpm
⑥	Encoder	D: 17 bit T: 2500 ppr P: 23 bit absolute
⑦	Brake	A: without brake B: with brake
⑧	Key groove	Y: Yes
⑨	Oil seal	Y: Yes
⑩	Input servo drive voltage	B: 230 V D: 400 V

Ogólna specyfikacja

The general specifications	Control mode			1.Position control 2.Speed control 3.Torque control
	Feedback type			1.Incremental square wave 2.Absolute value
	Conditions of use	Using/Storage temperature		0 ～+55°C / -20 ～+85°C
		Using/Storage humidity		90%RH or less(non-condensing)
		Resistance to vibration/impact resistance		4,9 m/s² / 19,6 m/s²
Speed Torque control mode	Performance	Speed control scope		5000(The lower limit of the speed control range is the condition of not stopping in rated torque load
		Speed changing rate	Load changing rate	When the load is 0 ～ 100%：less than ±0.01%(in the rated speed)
			Voltage changing rate	Rated voltage ±10%：0%(in the rated speed)
			Temperatue changing rate	25±25℃：less than ±0.1%(in the rated speed)
		Frequency characteristics(bandwidth)		1.3KHz(when JL = JM)
		Torque control precision (reproducibility)		±2%
		Soft start time setting		0 ～ 65s(can respectively set acceleration and deceleration time)
	Input signal	Speed instruction input	Instruction voltage	DC±10V(DC 0V ～ ±10V：Variable setting range)/rated rotating speed Input voltage：maximum ±12V(Motor forward when the instruction is positive
			Input impedance	About 10kΩ
			The circuit time parameter	Około 47μs
		Torque instruction input	Instruction voltage	DC±10V(DC 0V ～ ±10V：Variable setting range)/rated rotating speed Input voltage：maximum ±12V(Motor forward when the instruction is positive
			Input impedance	About 10kΩ
			The circuit time parameter	About 47μs
		Torque speed command	Selection of the rotating direction	Input using DI signal
Position control model	Performance	Feedforward compensation		0～100% (Ustawienie rozdzielczości 1%)
		Positioning complete width setting		1～65535 jednostek (ustawienie rozdzielczości 1 jednostki)
	Encoder	Incremental		2500 ppr, 5000 ppr
		Absolute value		17bit, 20bit, 23bit
	Input signal	Command pulse	Input pulse kinds	1.Symbol+pluse sequence 2.CCW+CW pluse sequence 3.90°Phase difference 2-phase pulse(A phase+B phase)
				Differential drive (+ 5V level)

			Input pulse state	Open Collector(+5V, +12Vor +24V level)
			Input pulse frequency	Differential drive：maximum 4MHz
				Open collector drive：maximum 500kHz
		Sygnał sterujący		Clear signal (input pulse shape and make pulse the same)
Input output signal	Position output	Output state		A phase、B phase、Z phase, Differential driver Output
		Divide ratio		Arbitrarily divide
	Input signal sequentially	Can conduct signal distribution 's change		9 road DI
				Servo ON, P action (or control mode switching, motor's forward /reverse switch carried by the internal speed , zero phase, prohibit command pulse), prohibits forward drive (P-OT), prohibiting reverse drive (N -OT), alarm reset, the forward current limiting, reverse side current limit (or internal speed selection)
	Output signal sequentially	Can conduct signal distribution 's change		5 road DO
				Contain positioning complete (consistent speed), the rotating motor, servo ready, current limit, the speed limit, the release of the brake warning, NEAR signal
Built-in functions	Dynamic brake (DB) function			The main power OFF, servo alarm, servo OFF, overtravel action
	Overtravel (OT) prevention function			P-OT, N-OT action when DB stops, deceleration stop or coasting stop
	Electronic gear			0,001≤B/A≤4000
	Prevention function			Overcurrent, overvoltage, undervoltage, overload, abnormal regeneration, the main circuit detection is not unusual, fin overheat, loss phase of power supply, overflow, overspeed, encoder error, to prevent runaway, CPU abnormalities, abnormal parameters, position offset, others
	LED display function			Main power CHARGE, 5 LED display
	Communication function	Connected devices		EtherCAT, MODBUS RTU
		Axis address setting		Set according to user parameter
		N communication		When the RS-485 port, the largest slave station is decided by master station's number
		Function		Status display, the user parameter settings, monitor display, alarm trace display, JOG operation and auto-tuning operation, speed, torque command signal, such as mapping functions
	Others			Origin search, motor angle selflearning function, gain selfadjustment, low-frequency vibration suppression, running mode switchover, motor suppressing resonance, abundant DIDO functions, full-closed loop control, interrupt fixed length function, easy to install and maintain, the product has a complete range of power

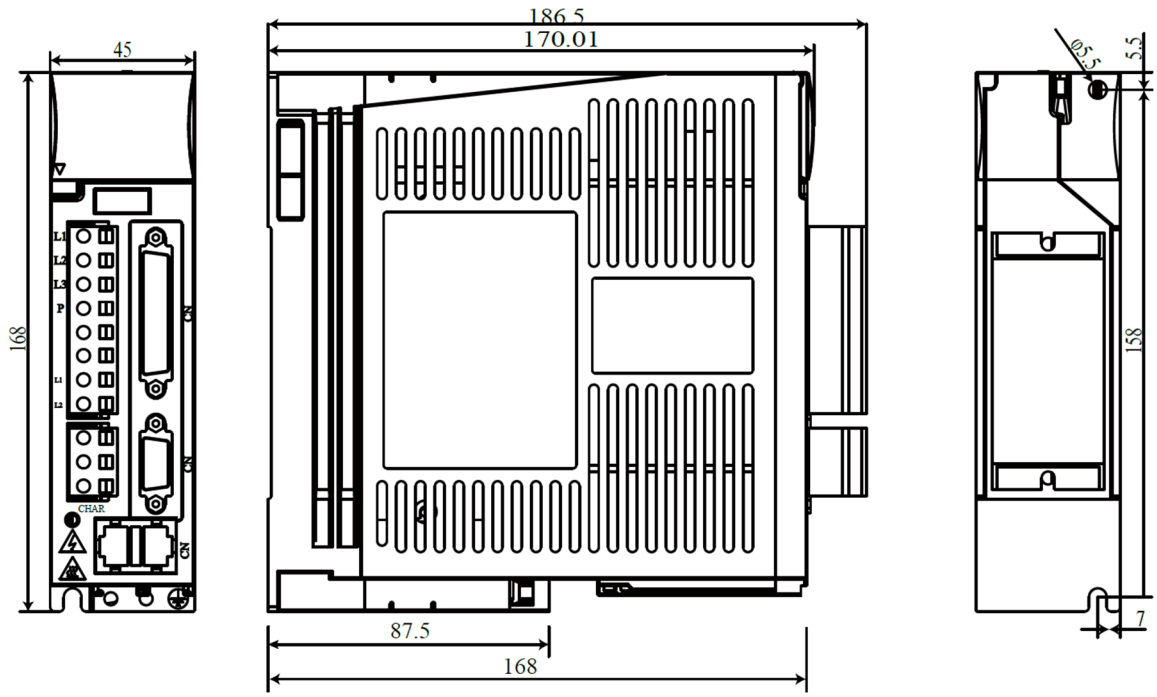
Drive system wiring



Dimensions

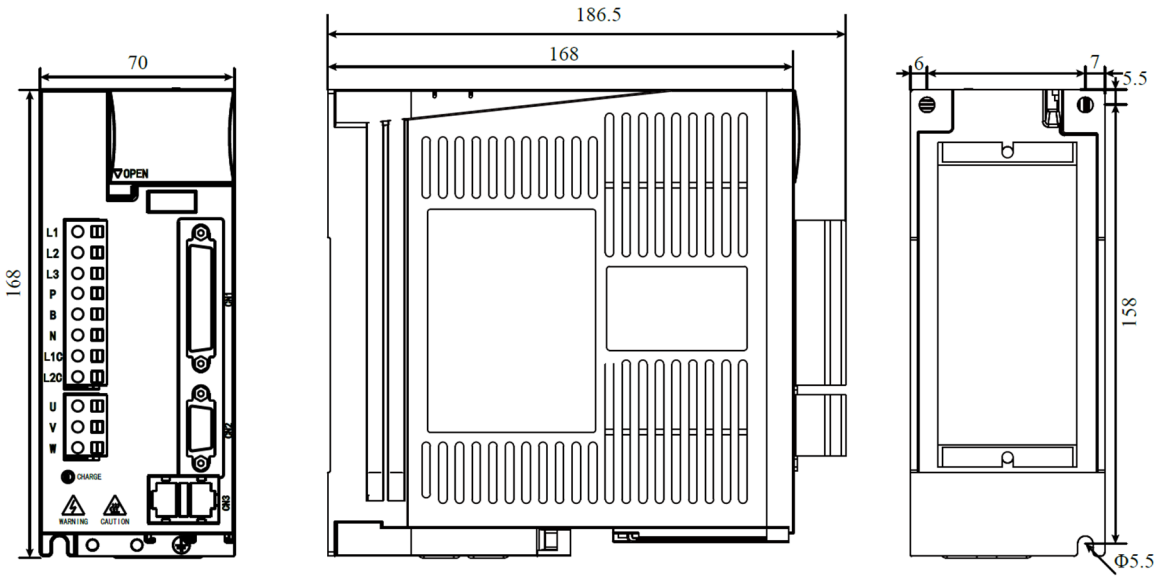
- **Servo drive up to 750W (EMD100-10A÷75A)**

H x D x W = 168 x 168 x 45 mm



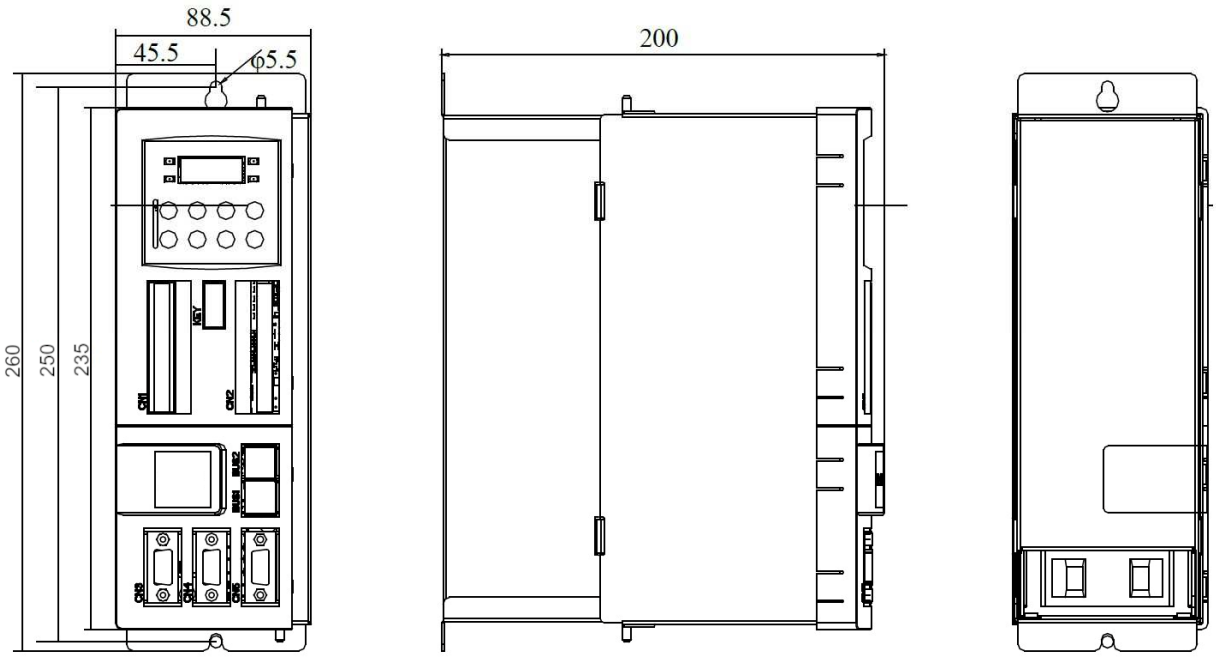
- **Servo drive up to 3kW (EMD100-100A÷300A)**

H x D x W = 168 x 168 x 70 mm



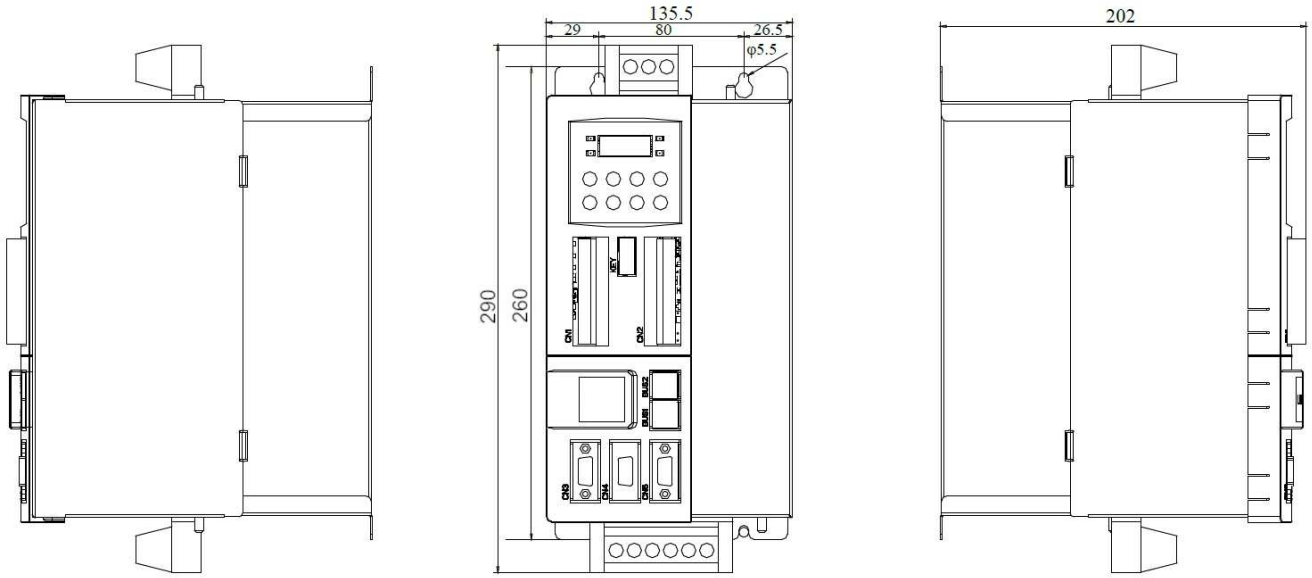
- **Servo drive up to (EMD100-450A÷550A)**

H x D x W = 260 x 200 x 88,5 mm

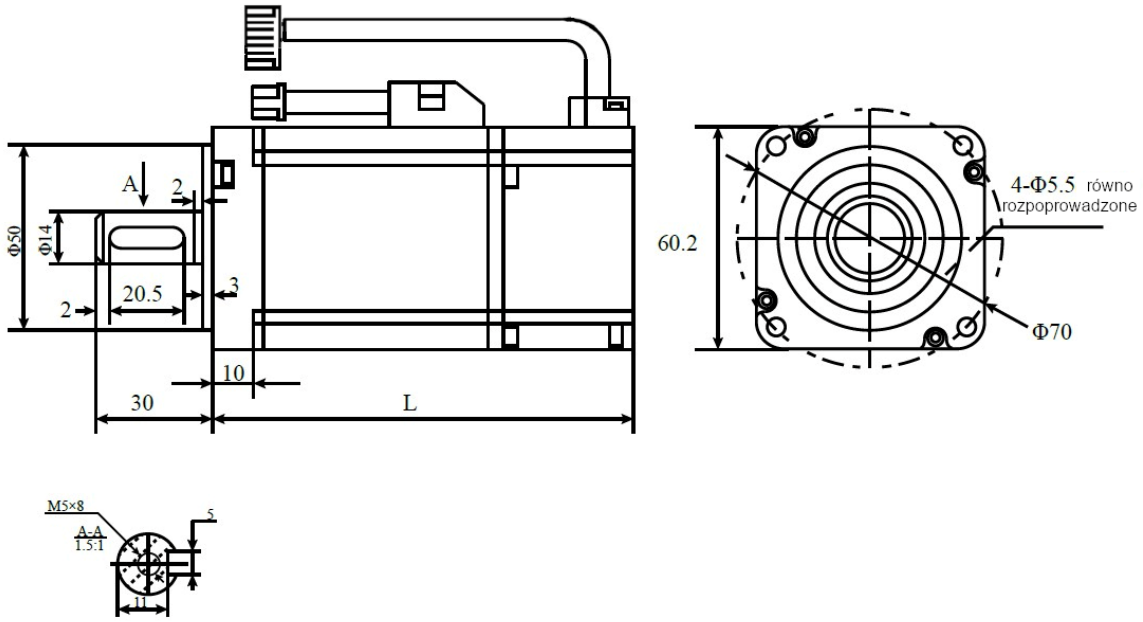


- **Servo drive up to 11kW (EMD100-750A÷1100A)**

H x D x W = 290 x 202 x 135,5 mm

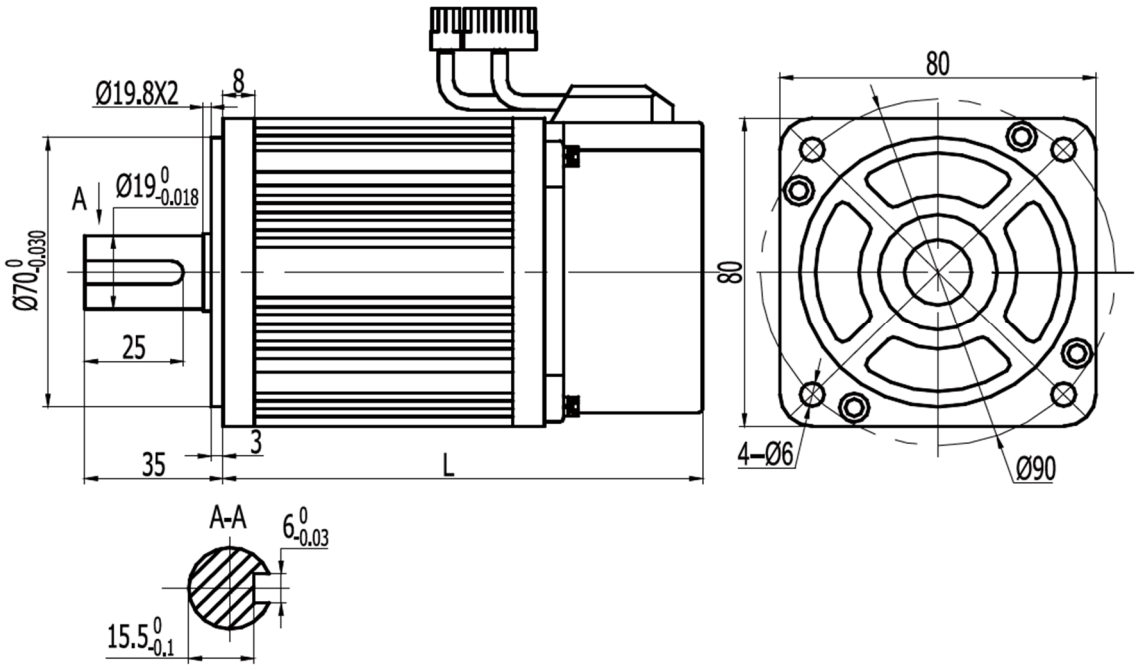


- **Servo motor with 60 mm frame (EMM-60)**



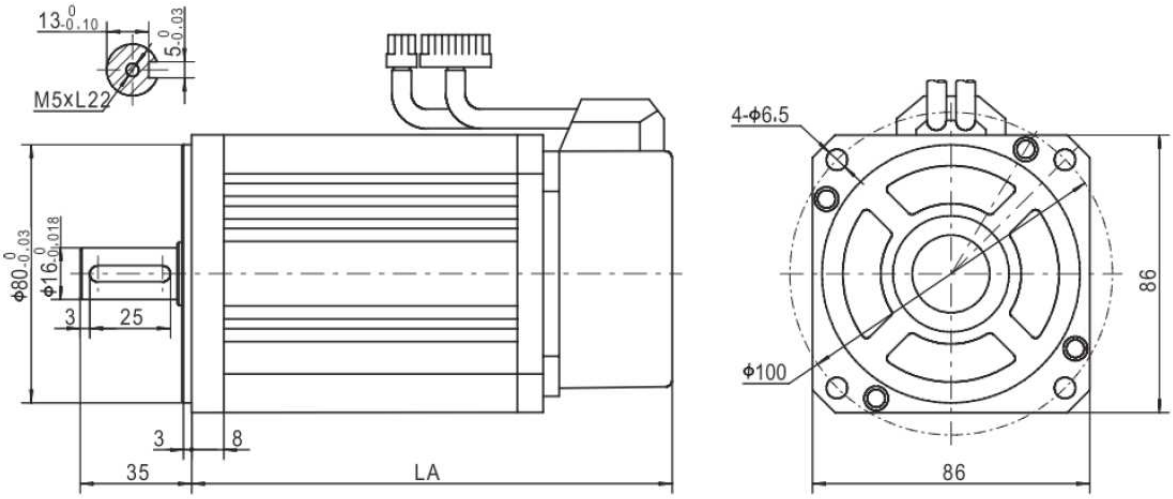
Model	EMM-60KP20A30	EMM-60KP40A30
L without brake (mm)	109	108

- **Servo motor with 80 mm frame (EMM-80)**



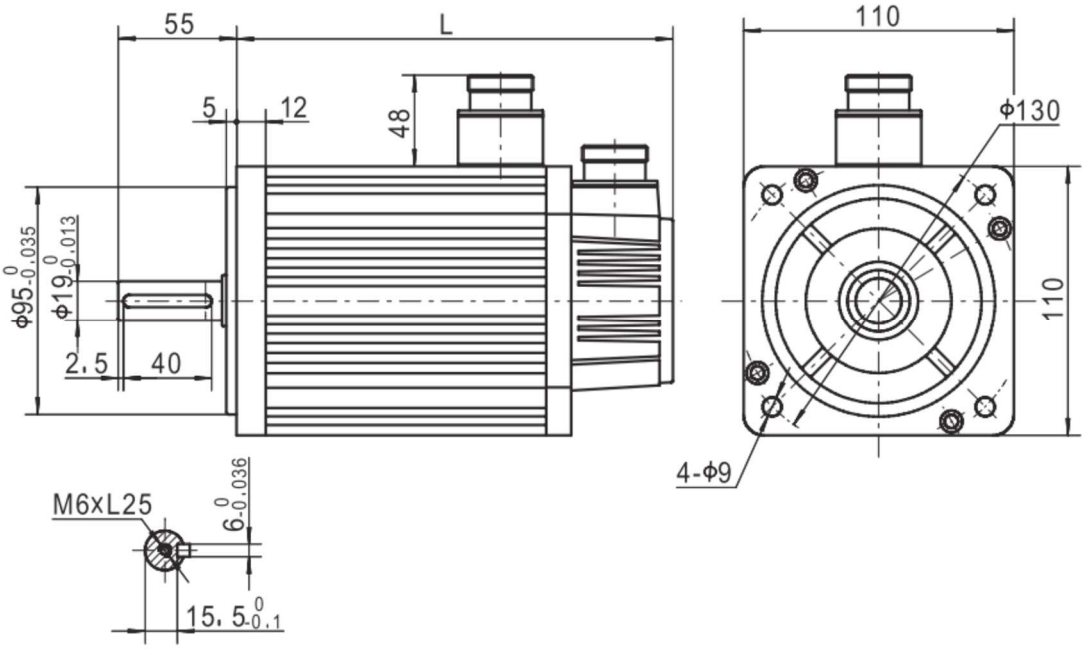
Model	EMM-80KP40A30	EMM-80KP73A20	EMM-80KP75A30	EMM-80KP100A25
L without brake (mm)	124	119	122,5	191

- **Servo motor with 90 mm frame (EMM-90)**



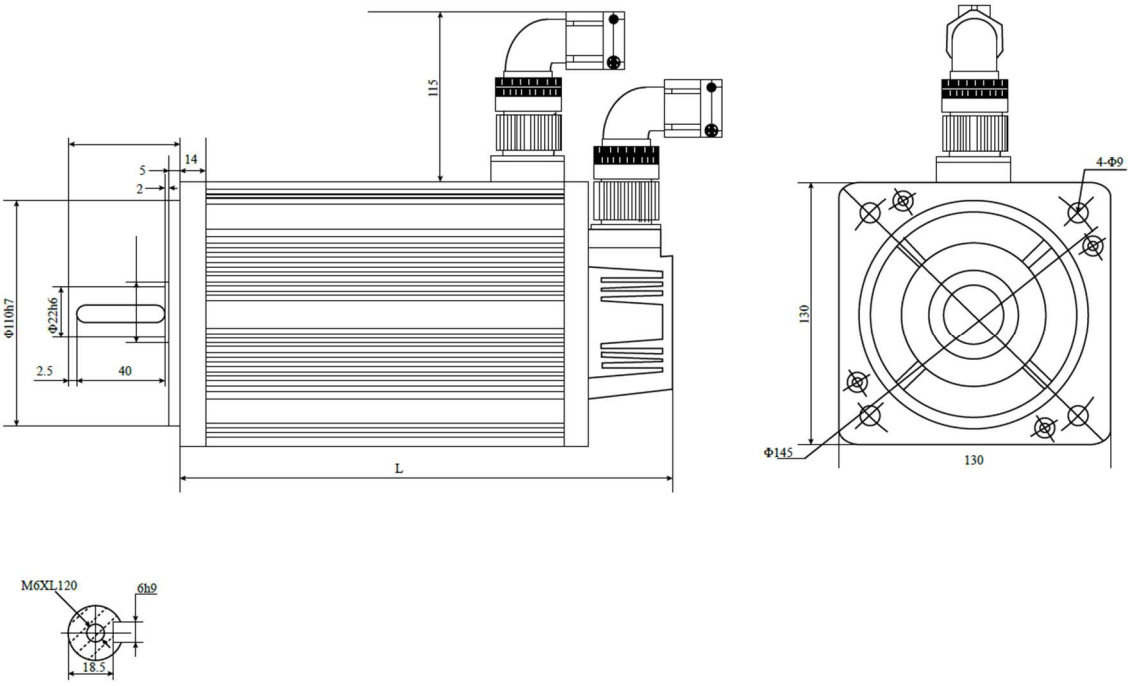
Model	90	
Rated torque (Nm)	3,5	4
L without brake (mm)	172	182
L with brake (mm)	214	224

- **Servo motor with 110 mm frame (EMM-110)**



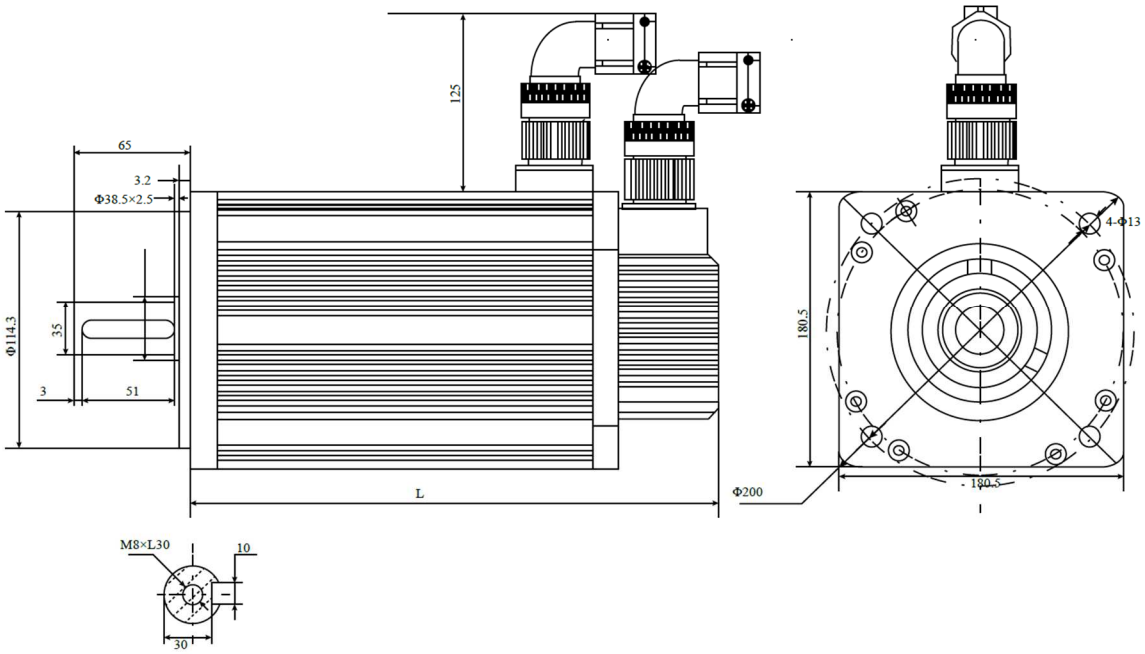
Model	110	
Rated torque (Nm)	4	6
L without brake (mm)	189	219
L with brake (mm)	254	284

- ## Servo motor with 130 mm frame (EMM-130)



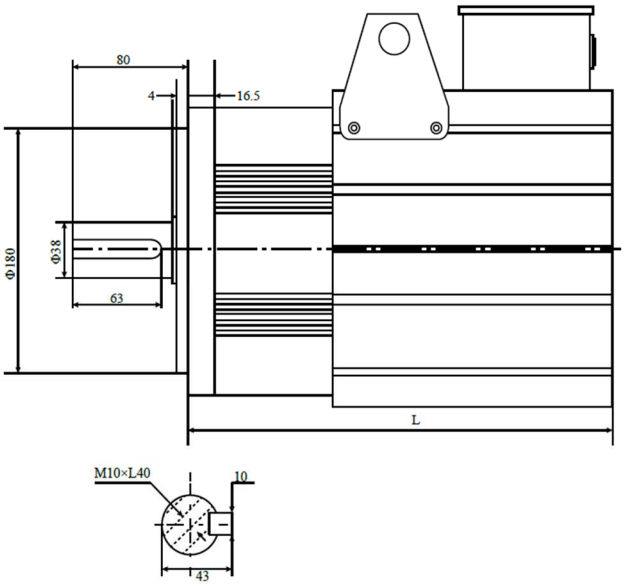
Model	130						
Rated torque (Nm)	4	5	6	7,7	10		15
					1500 obr/min	2500 obr/min	2500 obr/min
L without brake (mm)	166	171	179	192	213	209	231
L with brake (mm)	229	234	242	255	294	290	312

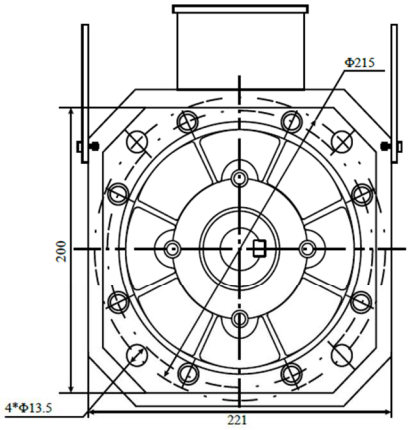
- ## Servo motor with 180 mm frame (EMM-180)



Model	180					
Rated torque (Nm)	19	21,5	25,5	27	35	48
L without brake (mm)	232	243	262	262	292	346
L with brake (mm)	304	315	334	334	364	418

- **Servo motor with 200 mm frame (EMM-200)**





Model	200	
Rated torque (Nm)	70	84
L without brake (mm)	413	451

Contact

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