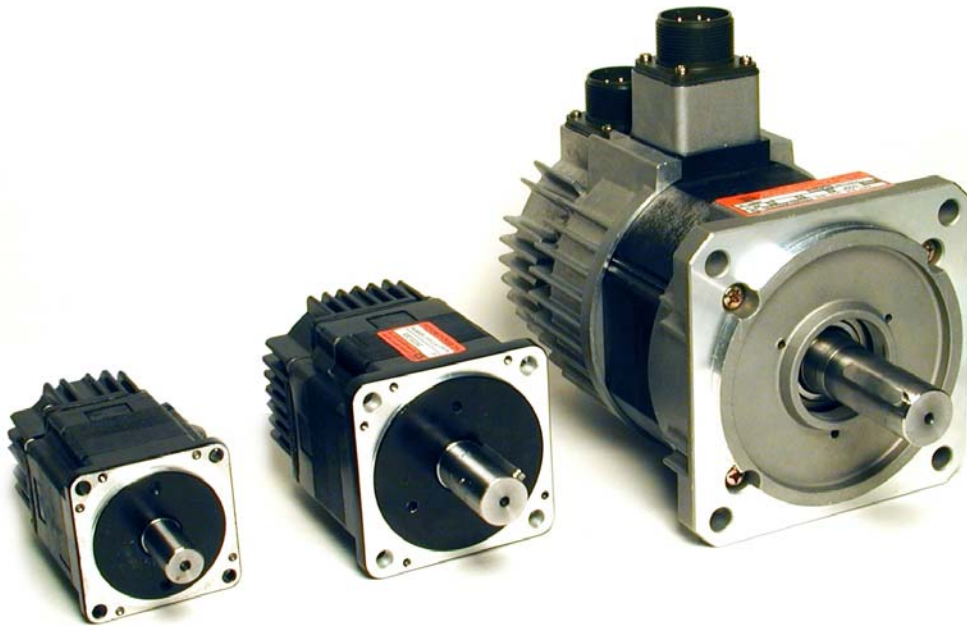


## High Quality, High Torque AC Servo Motors MSE400, 800, 1K5 and 3K0



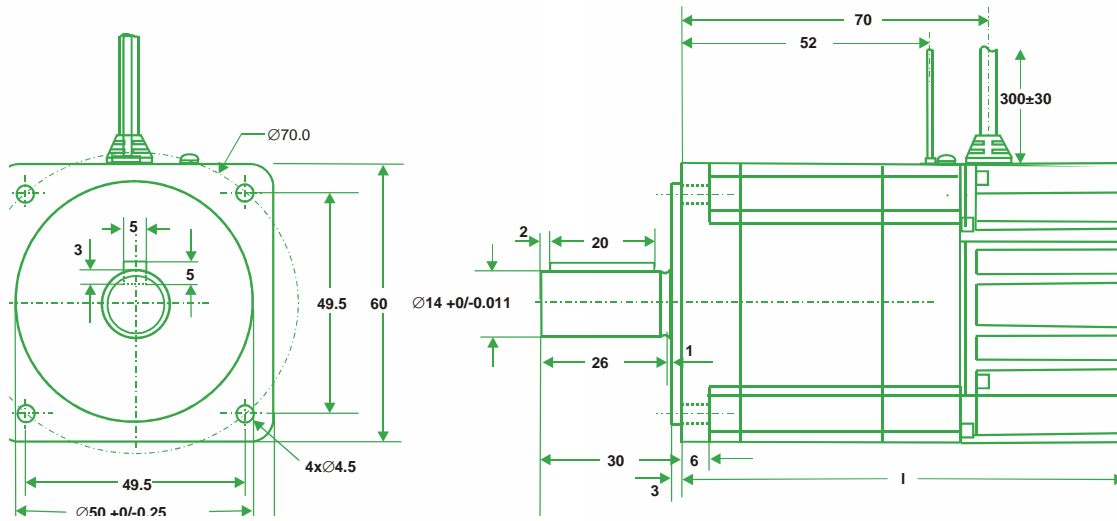
- Highest torque density rating in the industry
- High torque-to-inertia for faster start and stop
- Rugged design and long life bearings
- High power, cooler running, rare-earth magnet design
- Exposed-lamination housing, optimized for high torque and smooth operation
- Encoder 2000p/r. With JVL AMC20 series servo motor controller, 8000 counts/r with index pulse.
- Very short length compared to power rating: 750W@102mm
- Standard servo flange
- Yaskawa/Omron flange and shaft
- High axial and radial shaft load
- Low noise
- Option for planetary gearhead
- Option for 24VDC brake built-in
- MSE400, 800, 1K5 and 3K0 have been designed by JVL for use with the JVL AMC20 series of advanced AC servo controllers.



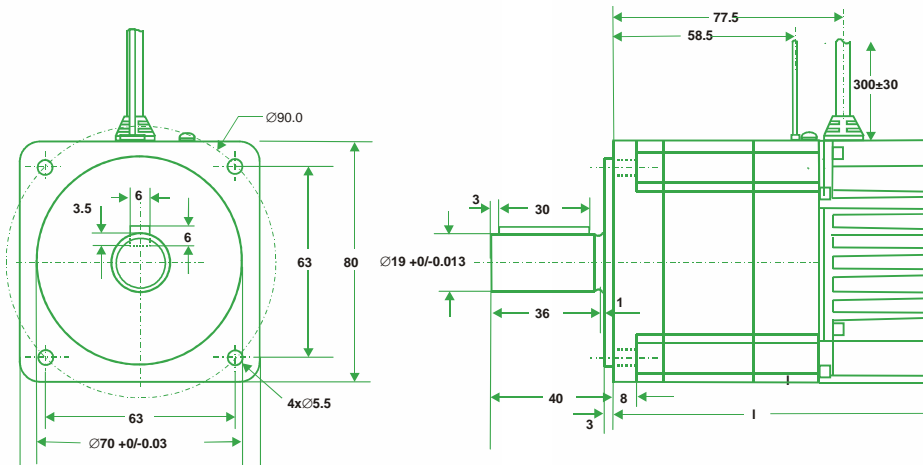


# Physical Dimensions

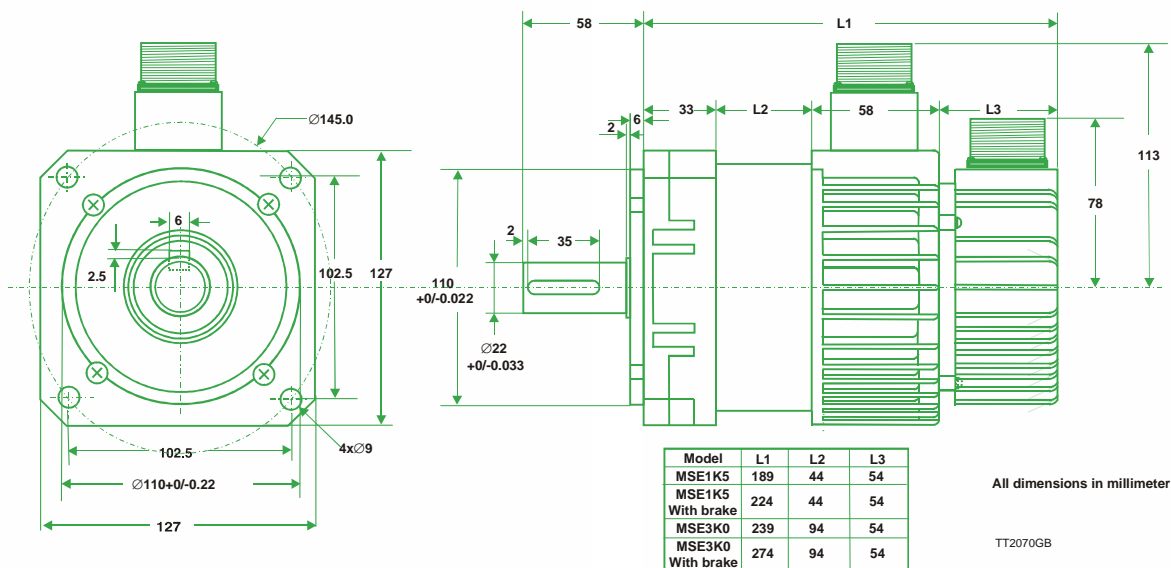
## Model MSE400



## Model MSE800



## Model MSE1K5 and MSE3k0



## Specifications

	Motor type	Unit	MSE400	MSE800	MSE1K5	MSE3K0
	JVL Controller type		AMC20	AMC20	AMC21	AMC22
	Rated Output	W	400	750	1500	3000
	Rated terminal voltage	V	86	121	200.3	199.7
	Rated torque	Nm	1.27	2.38	4.78	9.5
	Rated Current	A RMS*	3.5	4.4	7.06	14.0
	Rated speed	rpm.	3000	3000	3000	3000
	Peak torque	Nm	3.82	7.16	14.32	28.6
	Peak current	A	11.1	13.8	21.2	42
	Max. Speed	rpm	5000	5000	4000	4000
	Rated power rate	kW/s	55.9	62.8	35.9	74.5
	Torque constant	Nm/A**	0.364	0.606	0.74	0.75
	Back EMF (at 1800 RPM) (2phase)	V	44.4	65.8	80.5	81.6
	Voltage constant (2phase)	V <sub>RMS</sub> /krpm	24.7	36.6	77.5	78.5
	Inertia	kgcm <sup>2</sup>	0.29	0.907	6.37	12.25
	Armature resistance (Between 2 phases star connected)	Ω	1.87	0.78	0.98	0.37
	Inductance	mH	4.22	4.74	5.37	2.43
	Mechanical time constant	ms	0.487	0.428	1.14	0.81
	Electrical time constant	ms	2.25	4.11	5.48	6.57
	Weight	kg	1.2	2.1	6.6	10.3
B R A K E	Exiting voltage	VDC	24±10% (min. 15VDC)			
	Static rubbing torque	Nm	1.3	3.25	8	14.7
	Inertia (total)	kgcm <sup>2</sup>	0.32	1.13	7.05	13.0
	Exciting current	A	0.25	0.5	0.58	0.59
	Weight (total)	kg	2.0	2.85	8.8	12.0
	Time		Continuous			
	Insulation class		Class F		Class B	ClassB
	Insulation voltage		AC 1500V at 1 minute		AC 1800V at 1 minute	
	Insulation resistance		DC 500V above 10 MΩ		DC500V above 10MΩ	
	Structure		Fully closed, IP42			
	Shockproofness		Below 2.5 G		Below 1G (6ms 2 times at each XYZ direction)	
	Altitude		Under 1000m			
	Operating temperature	°C	0-40, below 90%RH (No frosting)			
	Storage temperature	°C	-20 – app.+ 60, below 90%RH (No frosting)		0-40	
E N C O D E R	Speed detector		Optics encoder (INC:2000P/R,ABS:2048P/R)			
	Pulses/rev.		2000 P/R (with AMC20 controller, 8000 counts/R)			
	Supply voltage	VDC	5±0.25			
	Current	mA	≤50			
	Output		Linedriver 26C31			
	Frequency	kHz	0-200			
	Channels		A,Ā,B,Ī,Z and Ī			

Nominal data at 25°C. Actual data will vary ±10%. \* Total motor current. \*\*For total motor current.

## Connections

### MSE400 and MSE800

Motor Encoder



Designation	Pin no.	Lead color	AMC20 connection
U	1	Red	U2
V	2	White	V2
W	3	Black	W2
GND	4	Y/G	Earth

Designation	Pin no.	Lead color	AMC20 connection
+5V	1	White	5V0 (P9)
0V	2	Black	ECM (P8)
A	3	Green	EA1 (P10)
Ā	4	Blue	EA2 (P11)
B	5	Red	EB1 (P12)
Ī	6	Pink	EB2 (P13)
Z	7	Yellow	EZ1 (P14)
Ī	8	Orange	EZ2 (P15)
FG	9	Shield	Shield

### Brake

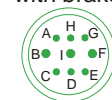
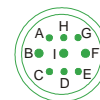
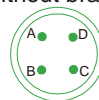
Brake

1	Yellow	24V
2	Yellow	0V

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### MSE1K5 and MSE3K0

Motor Encoder Motor  
without brake with brake



Designation	Pin no.	AMC20 connection
U	A	U2
V	B	V2
W	C	W2
GND	D	Earth

Designation	Pin no.	AMC20 connection
+5V	B	5V0 (P9)
0V	I	ECM (P8)
A	A	EA1 (P10)
Ā	C	EA2 (P11)
B	H	EB1 (P12)
Ī	D	EB2 (P13)
Z	G	EZ1 (P14)
Ī	E	EZ2 (P15)
FG	F	Shield

Designation	Pin no.	AMC20 connection
+24V	A	Brake
U	B	U2
GND	C	Brake
	D	NC
	E	NC
V	F	V2
	G	Earth
	H	NC
FG	I	W2

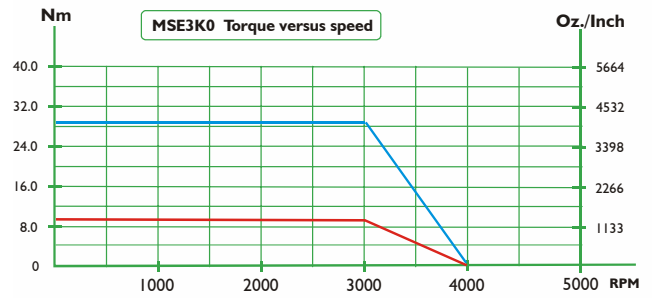
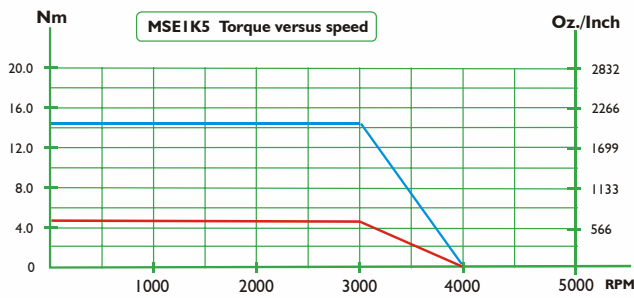
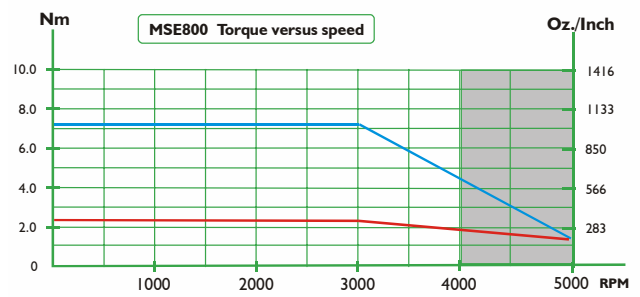
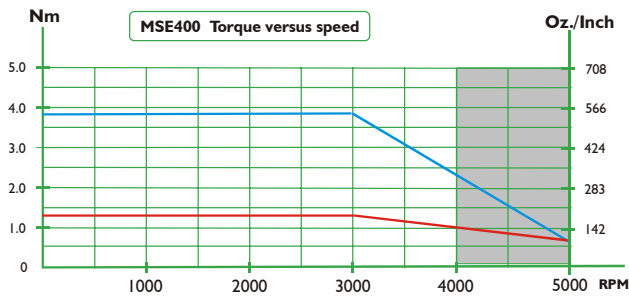
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## Torque-Velocity Profiles

— = Peak Torque    Shaded area: short term only  
 — = Average Torque



TT1003GB

## Recommended Servo Motor Controller

	Motor Current (A)	Nominal Power (kW)	Peak Power (kW)	Advanced Program Execution	JVL-bus CANopen
AMC20	5	1	3		
AMC21	10	2	6		
AMC22	15	3	9		
AMC20P	5	1	3	X	X
AMC21P	10	2	6	X	X
AMC22P	15	3	9	X	X

## Motor Ordering Numbers:

400W: MSE400-D1BAAM (without brake)  
 800W: MSE800-D1BAAJ (without brake)  
       MSE800-D4BAAJ (with brake)  
 1500W: MSE1K5-D1BAEL (without brake)  
 3000W: MSE3K0-D1BAEL (without brake)



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