High Torque Stepper Motors MST51x up to 50 Nm.

This high torque stepper motor can be used for application that demand extreme high torque at low speed. With a flange size 134x134mm and length, 270mm can this motor deliver up to 50Nm holding or running torque.

	Torque	Length
MST511	27Nm	165mm
MST512	40Nm	230mm
MST513	50Nm	270mm

- Flange NEMA51, 133x133mm.
- Industrial connector for high IP protection.
- 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.
- Standard NEMA51 mounting.
- High axial and radial shaft load.
- Cost-effective alternative to servo motors.
- Optional with build in controller SMC85 with PLC and Ethernet.
- Standard 1,8°. Optional 0,72° or 1,2°.

General Specification for Hybrid Stepping Motor

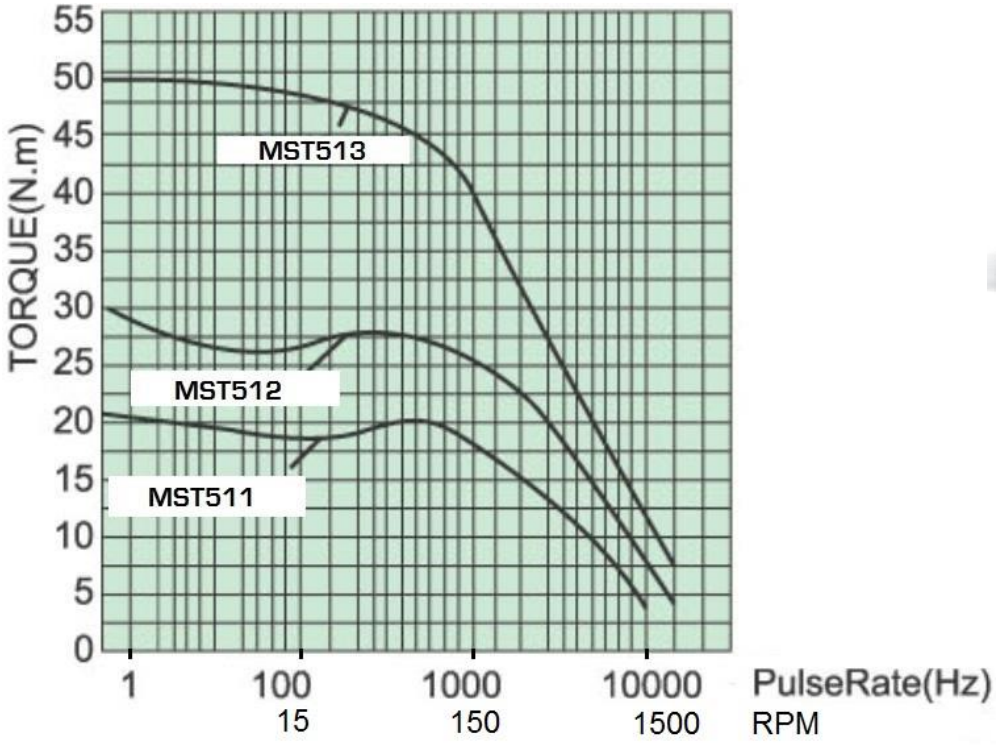
Item	Specifications
Step Angle	0.72° / 1.2° / 1.8°
Step Angle Accuracy	±5% (full step, no load)
Resistance Accuracy	±10%
Inductance Accuracy	±20%
Temperature Rise	80 C° Max.(rated current,2 phase on)
Ambient Temperature	-20 C° ~+50 C°
Insulation Resistance	100MΩMin. ,500VDC
Dielectric Strength	1500VAC for one minute
Shaft Radial Play	0.02Max. (450 g-load)
Shaft Axial Play	0.08Max. (450 g-load)
Max. radial force	220N (20mm from the flange)
Max. axial force	60N

MST51x 130mm Hybrid Stepping Motor Specifications

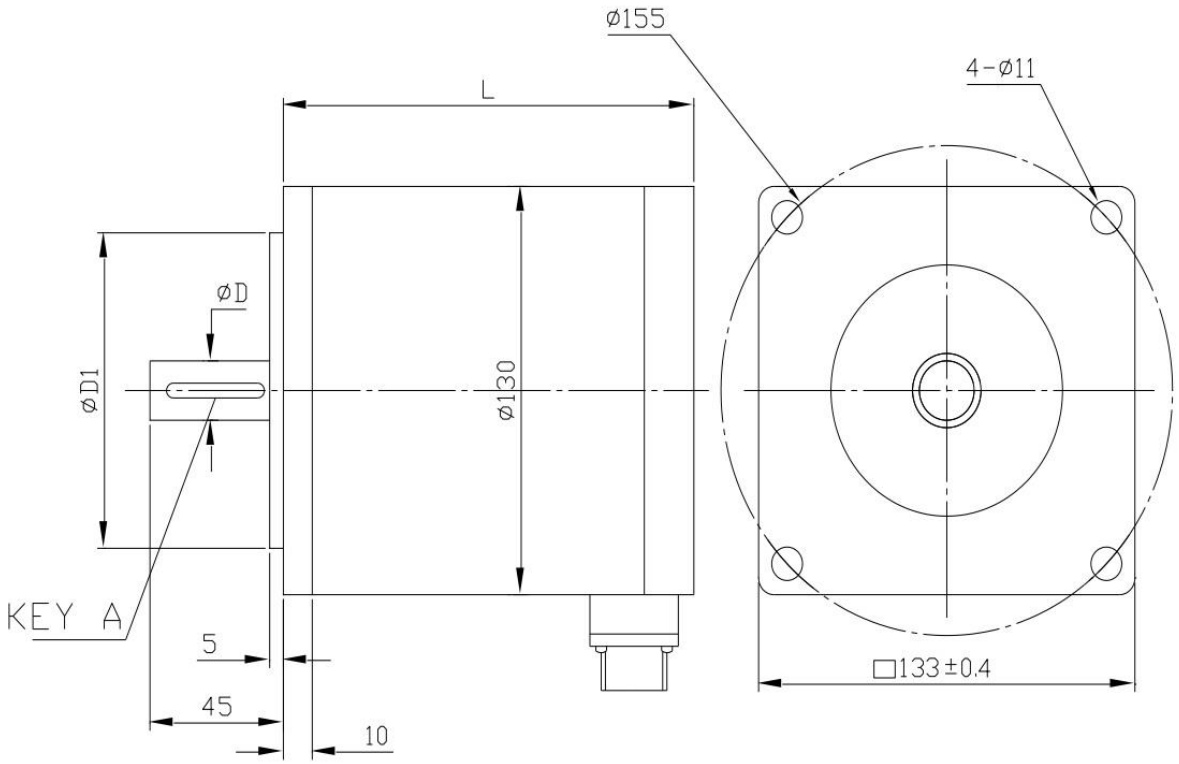
Model no	No. of phase	Step Angle	Rated Voltage	Current / Phase	No Load Run Frequency	Holding Torque	Rotor Inertia	Length	Shaft Dimension Φ D		Flange Dimension Φ D		KEY A	Wiring Diagram
Single shaft		degree	V	A	KHz	N.m	Kg-cm^2	mm	mm		mm			
MST511C213 -X2AA6.0	2	1.8	120-310	6.0	≥20	27	33	165	19	-0.013 -0.028	100	0 -0.023	5x25	1
MST512C213 -X2AA7.0	2	1.8	120-310	7.0	≥15	40	48	230	19	-0.013 -0.028	100	0 -0.023	5x25	1
MST513C213 -X2AA7.0	2	1.8	120-310	7.0	≥12	50	60	270			100	0 -0.023		1
On request	3	1.2	80-325	6.0	≥15	25	33	165	19	-0.013 -0.028	100	0 -0.023	5x25	
On request	3	1.2	80-325	6.0	≥15	37	48	230	19	-0.013 -0.028	100	0 -0.023	5x25	
On request	3	1.2	80-325	6.0	≥15	50	60	270			100	0 -0.023		
On request	5	0.72	120-310	5.0	≥20	20	33	165	19	-0.013 -0.028	100	0 -0.023	5x25	2
On request	5	0.72	120-310	5.0	≥20	30	48	230	19	-0.013 -0.028	100	0 -0.023	5x25	2
On request	5	0.72	120-310	5.0	≥15	40	60	270			100	0 -0.023		2

Torque vs Speed Curves.

Torque curves measured at driver voltage 310VDC and half step operation. If lower driver voltage is used, torque will decrease accordingly for speed above 50-100RPM.

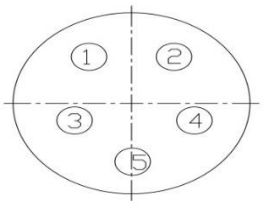


Dimension



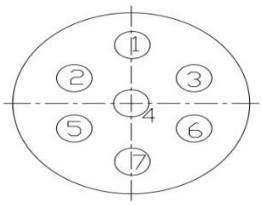
Wiring Diagram

Wdg 1

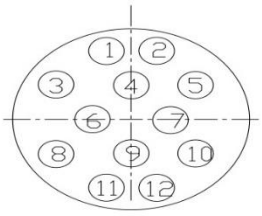


1----A+
2----A−
3----B+
4----B−
5----GND

Wdg 2



1----A
2----B
3----C
4----D
5----E
6---Empty
7----GND



1----GND
2----A
3----A′
4----B
5----B′
6----C
7----C′
8----D
9----D′
10----E
11----E′
12---Empty

SMC85 with Housing:

A Stepper Motor Controller 9 Amp with optional RS485 and CANbus serial interface. 8IO can be configured to input, output or analog input. Can be controlled via nanoPLC and MacTalk. The very compact, 78.4x86.2mm, PCB contains everything needed to solve a modern control task as stand-alone or controlled from a PLC or PC. MODBUS RTU, CANopen, Profinet, EtherCat, Powerlink, Ethernet IP and Sercos III gives the possibility for easy connection to a PLC. For PC or IPC an ActiveX/OCX driver is available so that interface to LABview, Excel, VB or other Windows-programs is simple.

The box can be mounted on a buttom plate or on DIN rail.

Motor connection M12 or M16	M12	M12 Angle cable type, WI1000-M12F5VxxN	M16	M16 Motor cable type WP2101 (1m), WP2105 (5m), WP2120 (20m)
Motor phase A+	Pin 1	Brown	Pin 1	Black "1"
Motor phase A-	Pin 2	White	Pin 2	Black "2"
Motor phase B+	Pin 3	Blue	Pin 4	Black "3"
Motor phase B-	Pin 4	Black	Pin 5	Black "4"
Ground/Housing	Pin 5	Grey	GND	Yellow/green

SMC85C1-Q5AABX5	Steppermotor controller with PLC	Stepmotor Cont in box 8IO RS485 9A 12-80VDC
SMC85C1-ExAABX5	Stepper controller with PLC and Ethernet	Stepmotor Cont in box 8IO RS485 9A 12-80VDC and industrial Ethernet like Profinet, EtherCat, Powerlink, EthernetIP.

Accessoires		
WP2105	Motor cable	Motor cable for SMC85 in housing 5m M16
WI1000-M12F5T05N	Power supply cable	M12 Shield Cable 5m 5 pin Fem 0°, Power
WI1009-M12M17T05N	IO cable	M12 Shieldl Cable 5m 17p Mal 0°
USB-RS485-M12M5T05	Programming cable	USB to RS485 for MIS and MAC motor M12
WI1046-M12M4T05TRJ45	Ethernet cable	Industrial Ethernet cable 5m
PSU80-4	Powersupply	Power Supply 80VDC/350W
MACTALK	Software	Windows software for setup and programming all JVL motors

For more information about the SMC85 click here.