

# M86SH80-Txx

HIGH TORQUE Bipolar Stepping motor - 1,8°



## Introduction

The M86SH80-Txx is a bipolar stepper motor with terminal-box, optionally equipped with a Push-Pull or Line-Driver incremental encoder.

The connection of the motor is made through a 7/8" circular connector, and the connection of the ecoder is made through a M12 circular connector.

Phase A

Phase  $\bar{A}$

Phase B

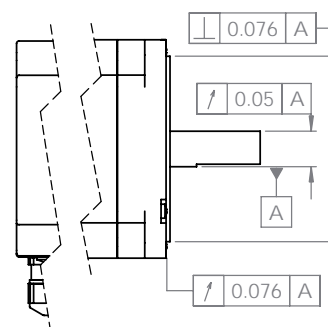
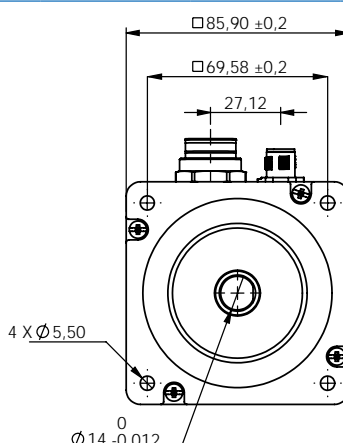
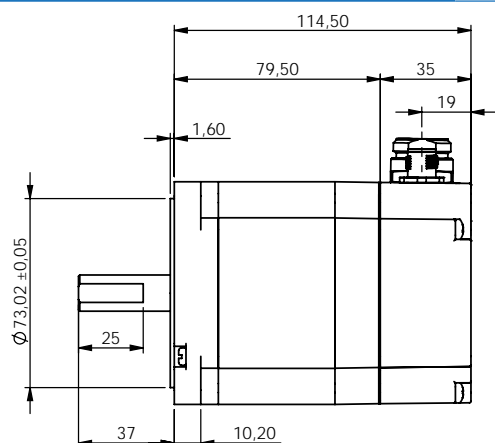
Phase  $\bar{B}$



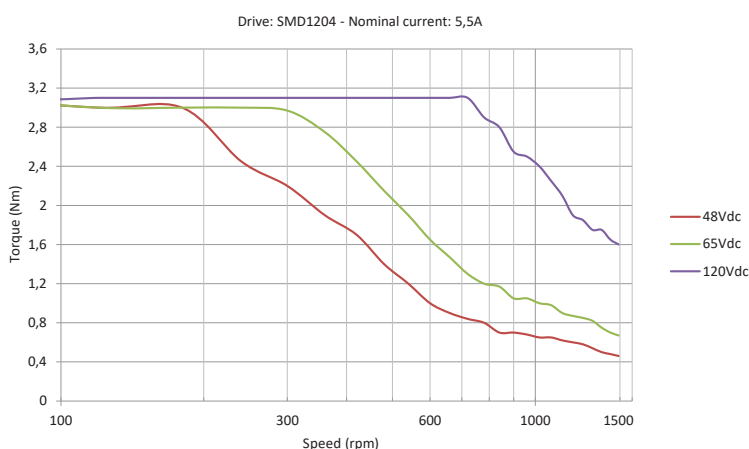
## Specifications

Model	Current/ phase	Resistance/ phase	Inductance/ phase	Detent torque	Holding torque	Rotor inertia	Encoder	Weight
M86SH80-T-C	5,5 A	0,42 $\Omega$	3,5 mH	130 mNm	4,6 Nm	1400 gcm <sup>2</sup>	-	2,3 Kg
M86SH80-TO0512P24C	5,5 A	0,42 $\Omega$	3,5 mH	130 mNm	4,6 Nm	1400 gcm <sup>2</sup>	Push-pull	2,3 Kg
M86SH80-TO0512L05C	5,5 A	0,42 $\Omega$	3,5 mH	130 mNm	4,6 Nm	1400 gcm <sup>2</sup>	Line-driver	2,3 Kg

## Mechanical dimensions



## Speed vs Torque curve



The torque curves are made with AEP torque transducer mod. MRT250NM

## Motor characteristics

Step Angle	1,8° ± 5%
Insulation Class	B
Ambient Temperature	-20 °C .. +50 °C
Temperature Rise	80°C max (2 phase ON)
Insulation Resistance	100 M $\Omega$ min 500Vdc
Dielectric Strength	820 VAC FOR ONE MINUTE
Shaft Radial Play	0,02mm (with 450g load)
Shaft Axial Play	0,08mm (with 450g load)
Max Radial Force	220N (20mm FROM FRONT FLANGE)
Max Axial Force	60 N

## Caution

Insert and tighten firmly the connectors before powering the motor. **Never disconnect any connector when powered.** Installation and maintenance must be carried out by qualified technicians only. The operator must have detailed information to be able to carry out this work.

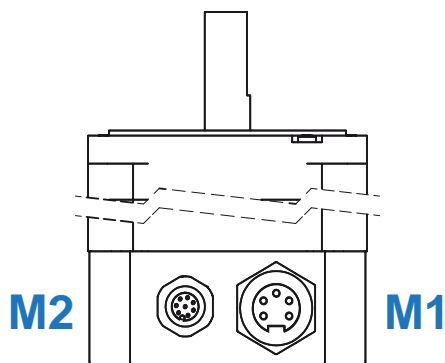
- Unexpected dangers may be encountered
- An incorrect use may destroy this product and the connected equipments.

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## Connectors layout



## Encoder characteristics

	PUSH-PULL	LINE DRIVER
V <sub>SUPPLY</sub>	+24 V <sub>DC</sub>	+5 V <sub>DC</sub>
I <sub>MAX</sub> (NO LOAD)	80 mA	
I <sub>MAX</sub>	60 mA each channel	
F <sub>OUT</sub> MAX	300 KHz	
COUNT/REV	512	
PROTECTION DEGREE	IP54	
WORKING TEMPERATURE	-20 .. +80 °C	

## Motor connector

M1	7/8 5 Pin male		PIN	Description	Cable color matching	
			1	Phase A	BLACK	
			2	Phase A -	BLUE	
			3	GND	YELLOW/GREEN	
			4	Phase B	BROWN	
			5	Phase B -	WHITE	

## Push-Pull encoder connector

M2	M12 5 Pin female		PIN	Description	Cable color matching	
			1	V <sub>IN</sub> (+24V <sub>DC</sub> )	BROWN	
			2	Channel A	WHITE	
			3	Common	BLUE	
			4	Channel B	BLACK	
			5	Channel Z	GREY	

## Line-Driver encoder connector

M2	M12 8 Pin male		PIN	Description	Cable color matching	
			1	Channel Z +	WHITE	
			2	V <sub>IN</sub> (+5V <sub>DC</sub> )	BROWN	
			3	Channel A +	GREEN	
			4	Channel A -	YELLOW	
			5	Channel B +	GREY	
			6	Channel B -	PINK	
			7	Common	BLUE	
			8	Channel Z -	RED	

## Ordering code

