MIGHTY ZAP
MINI LINEAR SERVO ACTUATOR

Things what you MUST know before use mightyZAP

Here is essential information to use mightyZAP properly. To prevent product damage by unintended result, please peruse below before use.

1. Control load should be less than Rated Load & Beware of injury

For example, rated load of L12-20PT-3 is 20N(approx. 2kg). That is, lifespan of L12-20PT-3 can be maximized when it is used under 20N. The less load, the longer lifespan.

If actuator should be inevitably used over the rated load, within max 2 times the rated load, reduce the duty rate to less than 20% to increase the break time. In this case, it is recommended not to use at the Z axis. Also, always pay close attention to prevent unexpected injury while actuator is operated.

2. Position command within mechanical limit

There might be mechanical limit which servo rod can move when user install servo motor in their application. Make sure that positional command should be made within user's mechanical limit. It might be a common knowledge to mention, but we have seen this mistake from time to time. If positional command is out of mechanical limit, servo will be overloaded at certain point of time and power will be cut off to protect the servo due to overload protection feature. (if overload protection is inactivated by user, motor will not be protected and burnt eventually.) Considering precise position control, make sure to re-check this matter when servo is applied.

3. Use under 50% of Duty Cycle

If DC motor operates continuously without any interval (rest), motor will be overloaded and overload protection feature will cut off the power of servo motor. Therefore, user should consider "Duty cycle" which means the percentage of motor operating time in whole cycle. In other words, 50% duty cycle means that motor should rest 50% of time when motor operate during 50% of time to manage motor lifespan more efficiently. Use under 50% of duty cycle for optimized lifespan. The less duty cycle, the longer lifespan.

4. Pay attention! Incorrect or reverse wiring and GND

There is little chance of incorrect wiring when using wire harness with connector provided by our factory.

However, if users use soldering or a third-party connector according to user's desire, please pay attention to mis-wiring between the communication and power lines. Incorrect wiring results in fatal damage to the PC board or certain electrical components. In addition, do not forget the common GND between the actuator & the customer's communication device to prevent malfunctions and product damage due to electrical noise.

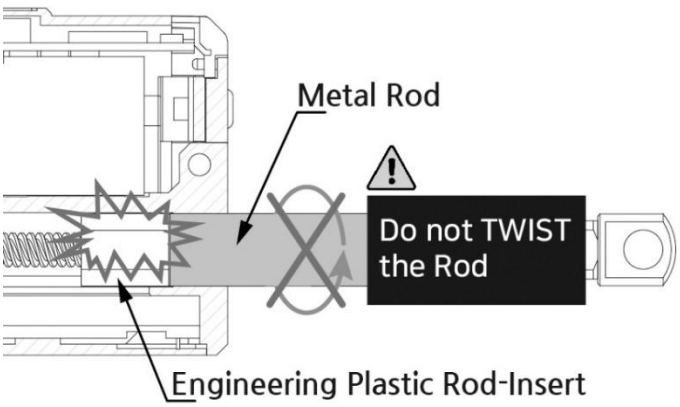
Please refer to the wiring pin map on page 12 ~ 13 at the mightyZAP user manual to prevent incorrect wiring

5. How to mount rod end accessory – Do not twist the rod

Do not TWIST the rod with excessive force when tightening the rod end tip.

Caution : If you apply excessive twisting force to the rod when tightening the rod and tip (while the body is fixed), it may cause damage to internal part (Engineering Plastic rod-insert).

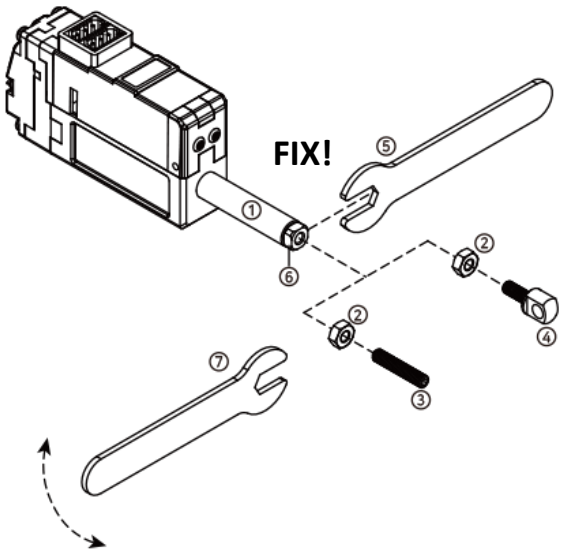
Follow below instruction to avoid damage.



[How to assemble – Use M3 spanner]

1) Fix the Rod-end with the included M3 spanner (⑤).
This is to prevent the rod (①) from turning badly and damage while tightening the M3 nut (②).
2) According to preference, install the socket set screw (③) or rod end tip (④) to the proper positioning before hard tightening.
3) Adjust the angle of the rod end tip (④) to the desired angle. By using included M3 spanner(⑦), adjust the position by tightening the M3 nut (②) while rod end is FIXED with another M3 spanner(see below image.).
This is "double nuts" concept which fixes mechanical position by friction.

Caution : The rod-end tip (④) or Socket set screw (③), which are basic accessories, can be fastened through the M3 standard tapping hole of the rod-end (6), and other customized rod-end tip can be installed according to the customer's desire. However, when fastening the object to the rod-end, make sure to fix the rod-end (⑥) with an M3 spanner. If you excessively apply the force to the rod (①) without fixing the rod-end (⑥) with an M3 spanner, it may cause damage to the internal parts.



6. Lateral rod shaking when operating

When no-load operation of some actuator, there may be a slight lateral shaking of the rod (Chattering). This phenomenon may occur depending on the assembly tolerance of the product, but it does not matter at all as this phenomenon disappears when certain load is applied. Please use actuator with confidence.

7. Sound during operation

Due to the nature of the product mechanism, our actuators generate a mechanical sound during operation. (Specification standard: 50db or less at 1m distance)

8. Speed difference at no load

There may be a slight difference in speed of the same model at no load condition, but the difference drastically decreases when certain load is applied. However, please use the actuators with the understanding that the speed of same model cannot be completely same at no load condition. For your reference, in the case of the force control line-up, you can use the speed parameter to synchronize the speed of multiple products.

9. Tolerance of start point/end point (Excluding limit switch actuator)

Please be advised that the start point and end point position of the rod allow a tolerance of up to +/-0.5mm. If you need to make the start/end point of all the actuators same, please use parameter called "Min/Max Position Calibration" or contact us before purchase so that we can do some custom-tuning for you. (Some customizing costs incurred)

10. Do not disassemble

The mightyZAP is built with a lot of small precision parts inside, so we are not able to guarantee its quality if the product is disassembled/assembled again by unskilled person. To prevent any disassembly/reassembly at user's discretion, we attached sticker on the case. If the sticker is damaged, please understand that the warranty may be void. If you need repair or inspection, please contact cs@mightyzap.com for further process.