

# FLIP-X terminology

## High leads

This term indicates models supporting ball screw leads that exceed standard lead lengths (12mm or 20mm). (Standard lead length on the F17 and C17L is 50.)

## Origin at non-motor side

This term indicates models supporting motors with inverse origin specifications as standard. Leads not showing this indication cannot support an inverse motor origin in the standard state. If custom specifications are required then please consult with our company.

## Repeatability

Repeatability is determined as follows; positioning operation to the specified point in one direction is repeated 30 times to obtain a standard deviation, which is then multiplied by 3.

## Maximum speed

The maximum speed here means the maximum carrying speed. YAMAHA's single axis robots can carry the work at this speed regardless of its weight as long as it is within the maximum load capacity. If the carrying distance is short, however, the maximum speed may not be reached because the heavier the work being carried is, the more lenient the acceleration /deceleration curve becomes.

### <Caution>

Vibration or abnormal sounds might occur when operated at maximum speed due to ball screw resonance caused by using ball screw types having a long stroke. If this happens, lower the speed to that listed in correct box in the notes. (The speed can be adjusted by lowering the conveyance speed for the entire program with the SPEED setting or by adjusting the movement command each time)

## Maximum payload

The maximum payload means the maximum weight that can be loaded on the slider and carried. When selecting the model, the total weight of tools (air cylinder, chuck, etc.) and the work should be less than this value. If the gravity center of the work is offset from the center of the slider, it is necessary to consider the permissible overhang as well. Also, it is so designed that optimum acceleration/deceleration speed and servo parameters are automatically set only by entering the total weight of tools and work for the payload parameter on the controller.

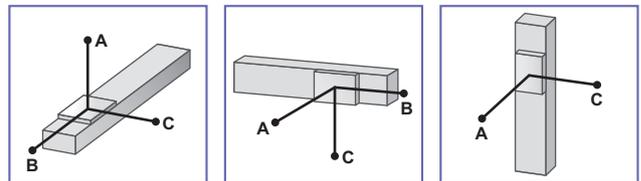
## Rated thrust

The rated thrust means the force applied in the advancing direction of the slider while it is held stationary (hold). During the vertical use (a force is applied downward from the top), reduce the weight of the load. The slider can move only at a slow speed (about 10% of the maximum speed), but this value may become lower than the specification. The type B which is driven by the timing belt cannot be used for the purpose where thrust is applied.

## Allowable overhang

The allowable overhang means how much the work may overhang. It is indicated as a specification by the distance from the center of the top face of the slider to the gravity center of the work to be carried by the weight. This value is determined on the basis of the service life of the linear guide. Under normal operation conditions <sup>(Note)</sup>, the 90% service life of the linear guide is 10,000km (5,000km for T4, T5, C4 and C5) or more if gravity centers of the work and tools are kept within the permissible overhang.

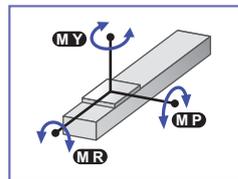
If using with an overhang amount exceeding the specification data then installing a separate support guide to prevent applying a load on the linear guides of the single axis robot or limiting the operating condition (speed, acceleration) is necessary. Please consult our company if more information is needed.



Note. Speed, acceleration 100% (The weight parameter must be set correctly). There should be no impact load or excessive vibration during operation. Alignment should be correct.

## Static tolerance moment

This term expresses the load moment applied to the slider in a state where the robot is stopped.



## Critical speed

Vibration or abnormal sounds might occur when operated at maximum speed due to ball screw resonance caused by using ball screw types having a long stroke.

If that happens, lower the speed to that listed within the maximum speed table at the very bottom of each page. (Adjust the speed by lowering the conveyance speed for the entire program with the SPEED setting or by adjusting the movement command each time.)