

Allowable Load and Payload

Introduction

An important Factor in determining the right robot for your application is understanding how much weight in total the robot can handle. Allowable load is typically referred to as the weight of the peripheral equipment mounted to specific areas of the robot. Payload is referred to as the amount of weight including the tool the robot can handle on the wrist axis. These values are used in combination with each other.

Allowable Load

For example, the GP25 robot can have a maximum allowable load on the U-axis of 37 kg, including the wrist load. For instance, when the mass installed on the wrist point is 25 kg, the mass which can be installed on the upper arm is 12 kg.

Payload and Drop Off

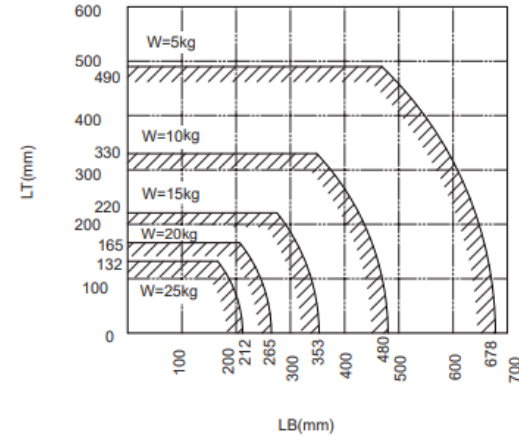
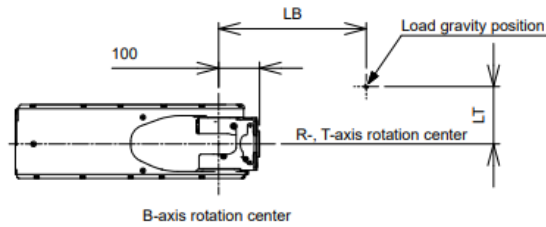
Continuing with the GP 25, The allowable payload of the wrist axis is 25 kg. However, there are additional requirements regarding the moment and the inertia that must be maintained. Even if the load is not applied as mass but applied as force, the values must not be exceeded.

Axis	Allowable moment N·m (kgf·m) ¹⁾	Allowable inertia (GD ² /4) kg·m ²
R-Axis	52 (5.3)	2.3
B-Axis	52 (5.3)	2.3
T-Axis	32 (3.3)	1.2

1 (): Gravitational unit

Payload does not have any drop off in relation to the robot's position in space. The payload drop-off comes into play when calculating the tool/loads CG distance from the flange regardless of robot's position in space.

This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.



Allowable Load and Payload information.

Each robot has an Instructions Manual that can be downloaded from our website. Found in the Service and Training tab, select [Documentation](#). The list of manuals is expansive, quickly snap to the robot specific manuals by holding CTRL+F then type in the robot's name in the search bar pop up, GP25 for example. Section 6 will detail the Payload data and Section 7 will cover the Allowable Load.