

# ROBOT PAYLOAD/SPEED CHART



## IG52 4WD DOUBLE BEARING CHASSIS

Below is a table with recommended payloads for each of the motor options. Please keep in mind that these payloads are a guide and are not stringent load ratings. Where and how you use the robot also plays a significant role in the payload and speed.

We have categorized them as "Low Duty Cycle" and "High Duty Cycle". Low duty cycle payload can be higher because the motors have more time to cool down. High duty cycles do not allow the motors much of a break and limit the overall payload. You should replace any motor that overheats, as it will either suffer a significant loss of power or cease functioning. However, duty cycle is not the only factor that should be considered.

With Skid Steering 4WD and tracked robots, turning is much harder on the motors than driving straight. This is because the wheels/tracks must skid in order to turn. Pivot turning or turning in place is especially hard on the motors. If the robot will turn a lot, we recommend keeping the payload to a minimum. If you won't be turning much in your use case, you may be able to allow for a higher payload.

Rough terrain (hilly and/or bumpy environments) will place more stress on the motors. The same goes for high friction surfaces (such as rough concrete or carpet). On flat smooth surfaces (such as smooth concrete or tile) your robot will carry more of a load.

If you plan on a **high duty cycle**, in **rough terrain**, and will require the robot to do **a lot of pivot turns**, we strongly recommend that you **do not exceed the payloads** listed under High Duty Cycle. If your duty cycle will be low and on flat smooth surfaces, refer to the payloads listed under Low Duty Cycle.

We always recommend being conservative with payload estimates, planning for the worst-case scenario, and erring toward having too much power vs not enough.

### IG52-DB Motors with 10-Inch Wheels

MOTOR RPM 15:21 REDUCTION	SPEED (feet per minute)	HIGH DUTY CYCLE PAYLOAD (lbs)	LOW DUTY CYCLE PAYLOAD (lbs)
044 RPM	082	100	160
082 RPM	152	80	130
136 RPM	253	60	80
285 RPM	529	20	45

### IG52-DB Motors with 13-Inch Wheels

MOTOR RPM 15:21 REDUCTION	SPEED (feet per minute)	HIGH DUTY CYCLE PAYLOAD (lbs)	LOW DUTY CYCLE PAYLOAD (lbs)
044 RPM	106	75	140
082 RPM	198	60	100
136 RPM	328	40	70
285 RPM	NOT RECOMMENDED		

### RELEVANT ROBOTS [Click to visit the Product Page](#)



TP-170-052



TP-171-052

CONVERSION CHART	
88 feet/min	1 mile/hr
54.7 feet/min	1 kilometer/hr
.305 feet/min	1 meter/min
2.2 pounds	1 kilogram