



## Robot Cycle Times: Beyond the Specification Sheet

Tradeoffs and considerations to maximize real world robot performance

The vendor spec sheets usually quote champion cycle with specific robot motion/path (shown above). Actual real-world applications rarely duplicates this specific champion cycle motion. There are other factors that will impact real world application cycle times.

### Real World Cycle Time Impacts

- **Real World Points and Waypoints**
  - Ensure the level of precision is understood and the path is followed
  - Epson has a wide range of arm lengths and even Righty/Lefty arms to maximize the work envelope
- **Precision**
  - Make sure the level of precision is known and how it effects cycle time
  - Epson offers three robot tiers of precision to fit the exact need
  - Placing a part with high precision, taking an image with a camera
- **Over/Undershoot**
  - Ensure the robot has smooth arm motion and fast settle times
  - Epson utilizes advanced motion control and Quartz MEMS technology
- **Payload**
  - Beyond rated payload how much is the speed derated
  - Epson has a wide range of models with payloads from 1 to 20kg
- **Inertia**
  - Often overlooked this critical property can control the cycle time
  - Utilize an app study to determine the effects
- **Duty Cycle**
  - Can the cycle time be sustained or is this a temporary boost mode



[Epson SCARA Robots Speed and Precision Video](#)

# Robot Cycle Times: Beyond the Spec Sheets

Tradeoffs and considerations to maximize real world robot performance

## Competitive Claims

## How to Respond

### Cycle Time is Faster

- Some champion cycle times sacrifice precision for speed
- All properties of an application must be considered to find the actual cycle time of a real world application
- Simply comparing cycle times between two different robots does not guarantee it will perform in an application
- What level of precision is used for their champion cycle
- An emulation with all known properties is the best way to compare two or more robots
- Epson's 3 tier SCARA lineup with 1 to 20kg payload and up to 1 meter reach enables the best robot for the application

## Application Stages

## Sales Questions

### Well Defined

- Has an application study been completed to fully understand the application details and taken into account to find the cycle time?
- What level of precision for each point are they using, is that good enough for your application?
- Has inertia of the tool and product been considered?

### In Development

- Can an application engineer help you determine what is needed to calculate the key parameters on your system?
- What level of precision is needed for each step for the process to be successful?
- What end of arm tools are you considering, are you open to some suggestions to reduce payload and inertia?

[Request an apps study to emulate real world cycle times](#)