

# TECHNICAL NOTE 260608

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## ORCA™ Motors Part Numbers & Voltage Requirements



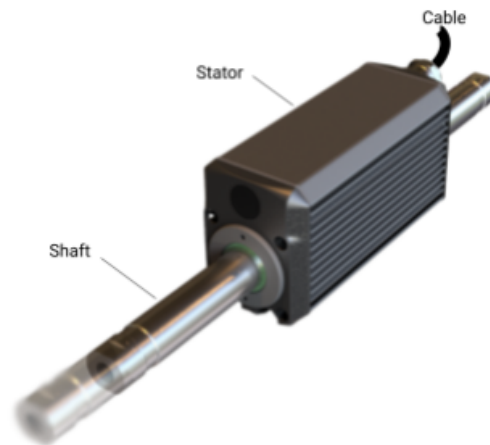
# ORCA™ Motors Part Numbers & Voltage Requirements

This technical note explains how ORCA motor part numbers work, how their voltage ratings should be interpreted, and how to select the most appropriate motor for a given application.

## What Does the Model Number Mean?

The Model Number, (e.g. ORCA-3, ORCA-6, or ORCA-15) is based on the size of the motor's coil pack. The total length of the stator is determined by the length of the coil pack, plus an additional 0.9 inches added by the end caps:

- **ORCA-3:** 3.9 inches
- **ORCA-6:** 6.9 inches
- **ORCA-15:** 15.9 inches



*Figure 1. ORCA Motor terminology.*

## What Does the Voltage Value in the Name Refer to?

The voltage designation, such as the “12 V” in ORCA-3-12 V, represents the nominal supply voltage required for the ORCA motor to produce the maximum force.

ORCA motors with lower voltage designations, such as the ORCA-3-12 V and ORCA-6-24 V, are designed for higher speeds within their respective series. Conversely, the motors with a higher voltage listed in their name, such as the ORCA-15-48 V, are better suited for peak forces; however their configuration generates greater back EMF, naturally limiting their top speed.

## Operating Voltages of ORCA Motors

Each of the ORCA motor models can operate with a supply of 12 to 60 VDC. Any voltage applied beyond the nominal rating will increase the motor's maximum speed, but the motor's maximum force remains unchanged.

Continuous force output is determined by the length of the motor body. ORCA motor models of the same length share the same mechanical profiles, meaning they share the same thermal capacity and continuous force limits. For more information related to ORCA motors and thermal management, see: [Thermal Management: Key Principles and Mitigations for Smart Linear Motors](#).

## What type of Power Supply is Recommended?

To power ORCA motors, we recommend a power supply with adequate power and no over-voltage protection - this allows the supply to absorb the regenerative power generated by the motor. To determine the minimum power required, you must assess the necessary application forces in relation to the motor constant. For more information on power supply selection please see: [How to Select the Right Power Supply for Your Linear Actuator](#).

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