



ORCA™ SERIES SMART LINEAR MOTORS

DATASHEET

ORCA-3-12V, ORCA-3-36V
ORCA-6-24V, ORCA-6-48V
ORCA-15-48V

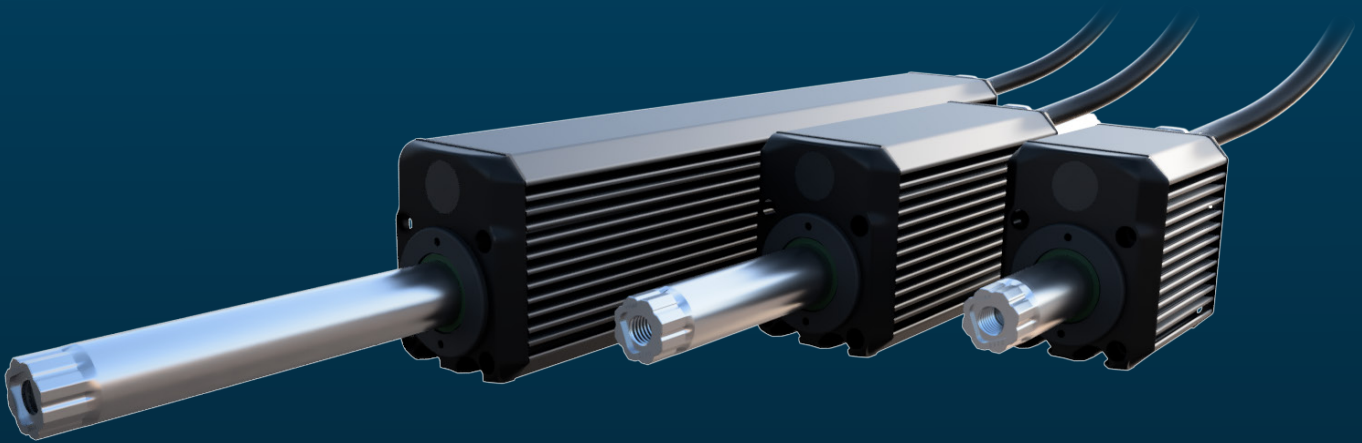


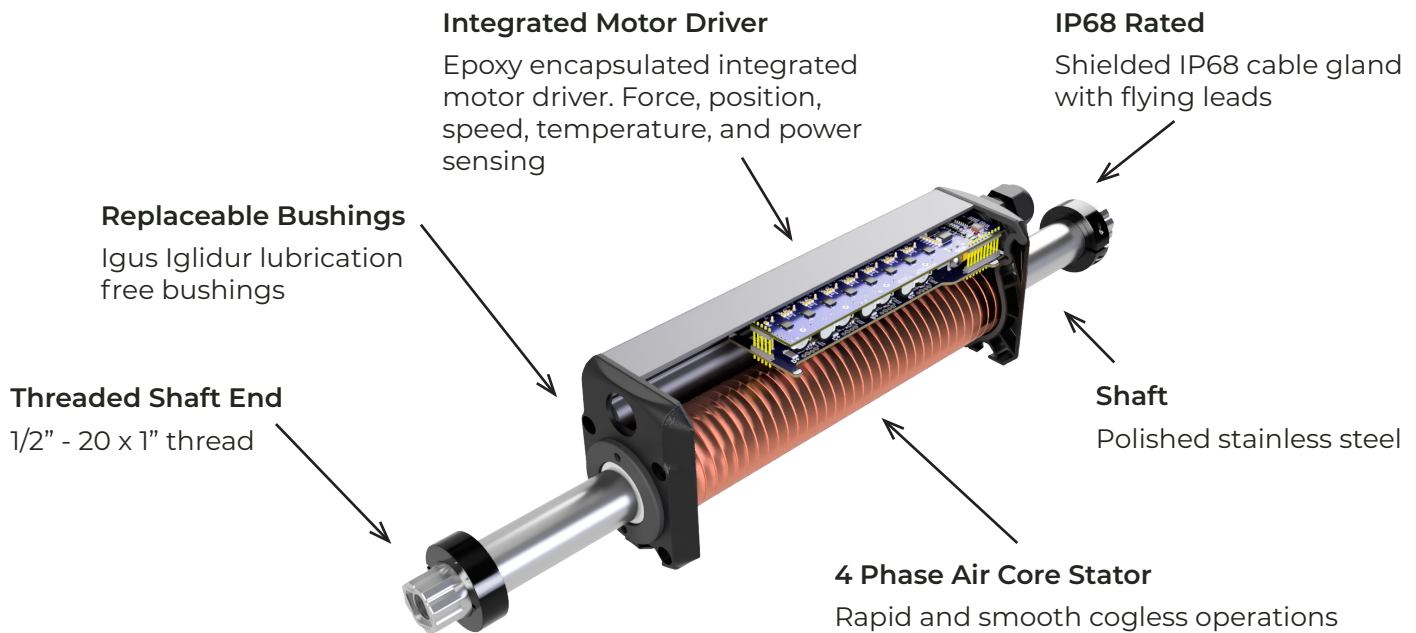


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ORCA Motors Overview



ORCA Series Fully Integrated Smart Linear Motor

ORCA Series Smart Linear Motors feature high performance, ultra-low latency, low total costs of ownership, and silent operation. These motors are force controlled making them ideal for applications with human-machine interaction. An all-in-one approach means every motor includes integrated drivers, power delivery, logic, and sensing. There are no requirements to buy a separate controller.

Product Highlights

- Integrated Waterproof IP68 Motor Driver
- Integrated Position and Force Sensing
- Highspeed Force and Position Control
- Very Quiet
- Powered by Low Voltage DC
- One Single Moving Part
- Hardened RS485 Communications
- Backdrivable with Low Force Ripple
- Low Maintenance
- Simple to Use

ORCA Series Smart Linear Motors Overview

Part Number	Max Voltage Supply	Max Force*	Max Speed	Position Sensor Accuracy	
ORCA-3-12V	60 V	182 N 40.8 lbf	8.1 m/s 320 in/s	±250 um	±0.0098 in
ORCA-3-36V		281 N 63.1 lbf	5.3 m/s 207 in/s		
ORCA-6-24V		426 N 95.7 lbf	5.3 m/s 210 in/s	±150 um	±0.0059 in
ORCA-6-48V		638 N 143.5 lbf	3.6 m/s 140 in/s		
ORCA-15-48V		1061 N 238.5 lbf	2.1 m/s 84 in/s		

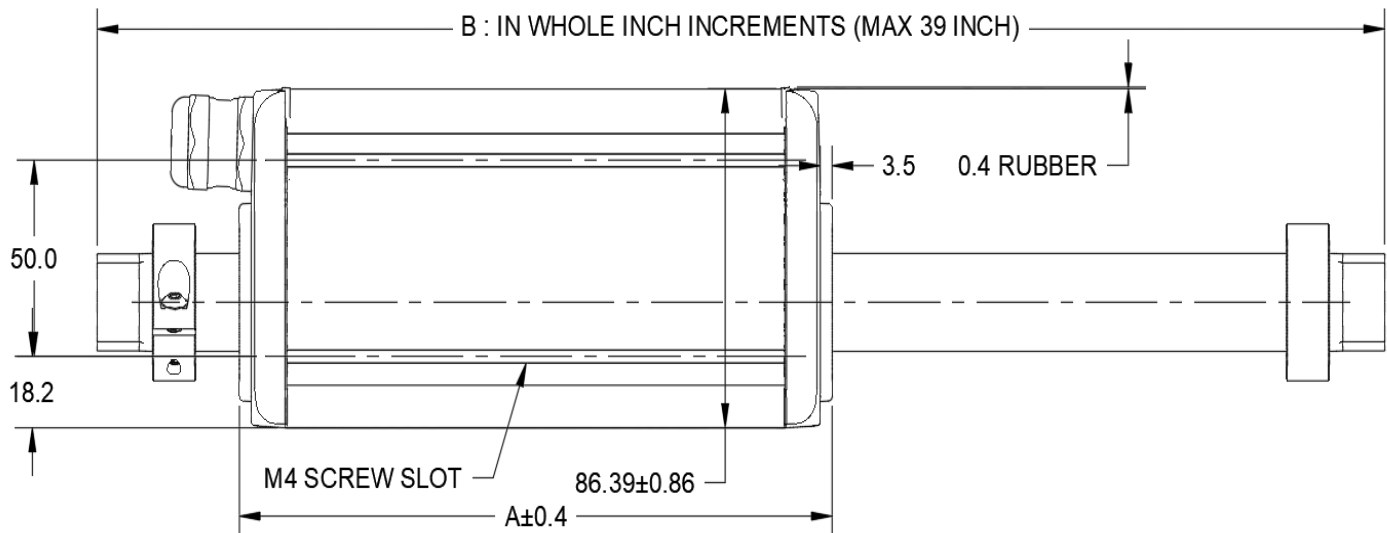
***Force Accuracy** Application-dependent. Customers with applications requiring a high degree of force accuracy are encouraged to contact Iris Dynamics support to discuss calibration methods, operating conditions, and expected system performance.



Mechanical Drawings

ORCA series motors come in standard sizes as shown in the table below. Usable stroke is calculated based on stator and shaft length.

The ORCA series is built to standard mechanical specifications, see below. Please contact us at sales@irisdynamics.com if your application requires modifications from this standard. Common modifications include shaft length, rear tube length, and stator color.



Motor Body Mechanical Specifications

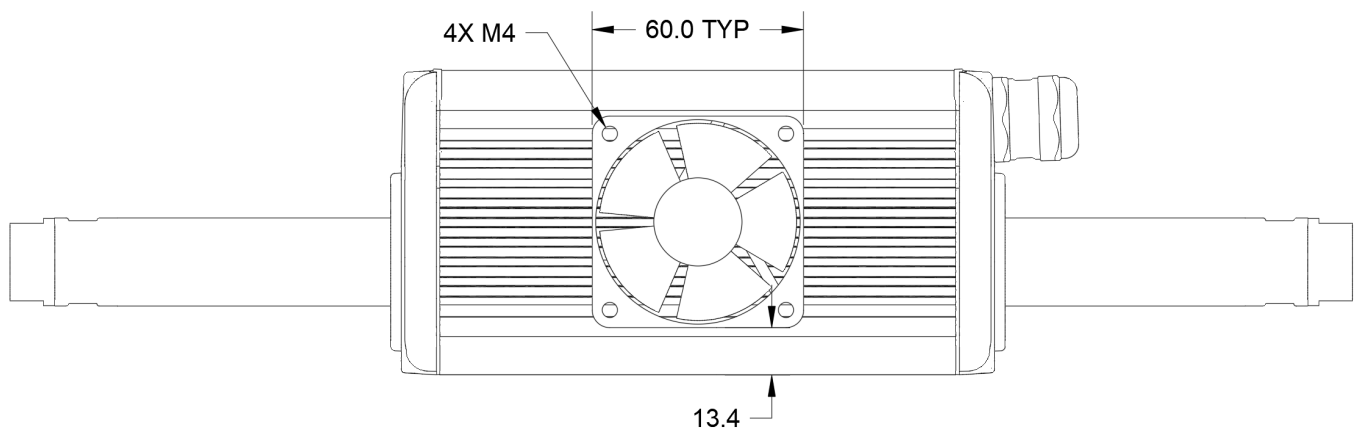
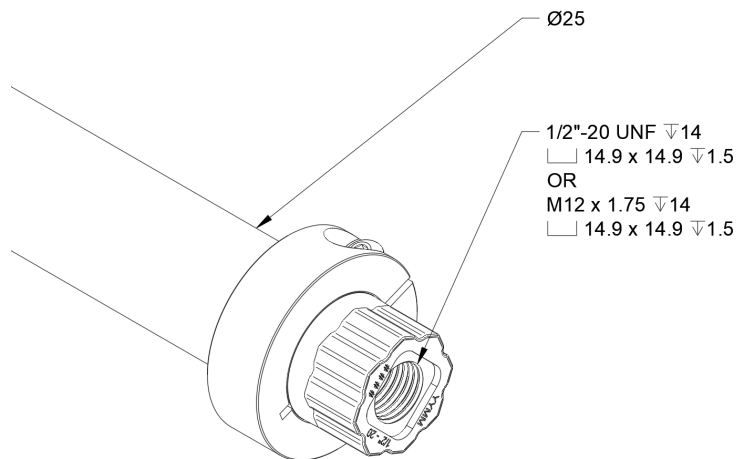
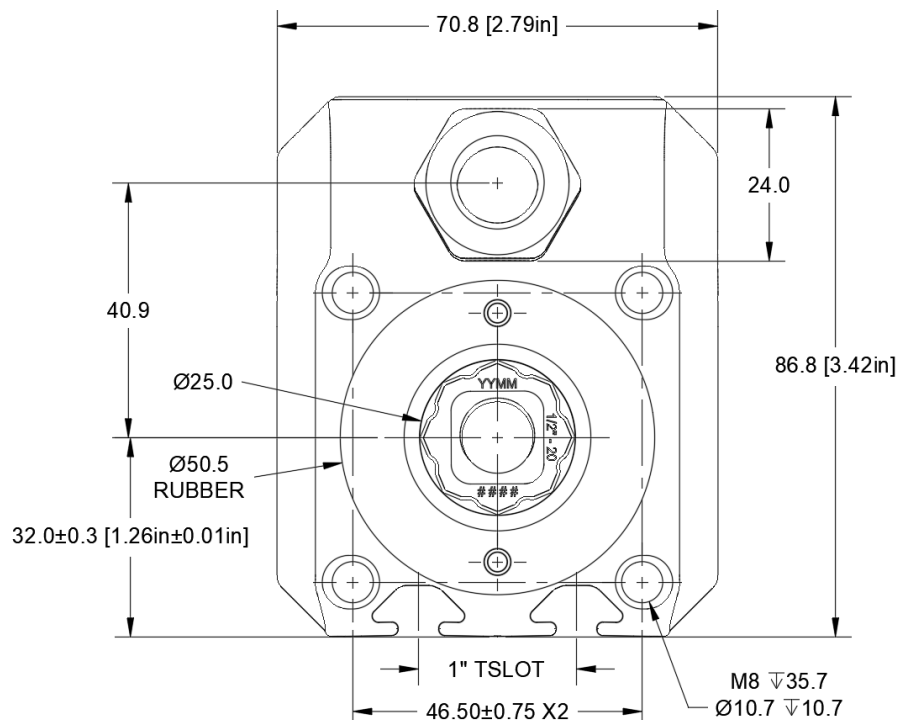
		ORCA-3-XXX	ORCA-6-XXX	ORCA-15-48V
Length	A	99.2 mm 3.9 in	175.4 mm 6.9 in	404 mm 15.9 in
Weight		1.224 kg 2.7 lbs	2.4 kg 5.29 lbs	5.3 kg 11.7 lbs
Chassis Material		Anodized Aluminum		
Bushing Material		Igus GFM-2526-25		

Standard Shaft Mechanical Specifications

		ORCA-3-XXX	ORCA-6-XXX	ORCA-15-48V
Length	B	228.6 mm 9 in	381 mm 15 in	762 mm 30 in
Length Tolerance		+/- (0.5mm + 0.002*B) +/- (0.02in + 0.002*B)		
Usable Stroke		101.6 mm 4 in	177.8 mm 7 in	330.2 mm 13 in
Weight		0.8 kg 1.76 lbs	1.36 kg 2.99 lbs	2.74 kg 6.03 lbs
Diameter		25mm 0.98 in	25 mm 0.98 in	25 mm 0.98 in
Material		Stainless Steel (304 SS) ↓		
Coupling		1/2-20 Threaded Hole (M12 Option Available) 14 mm		

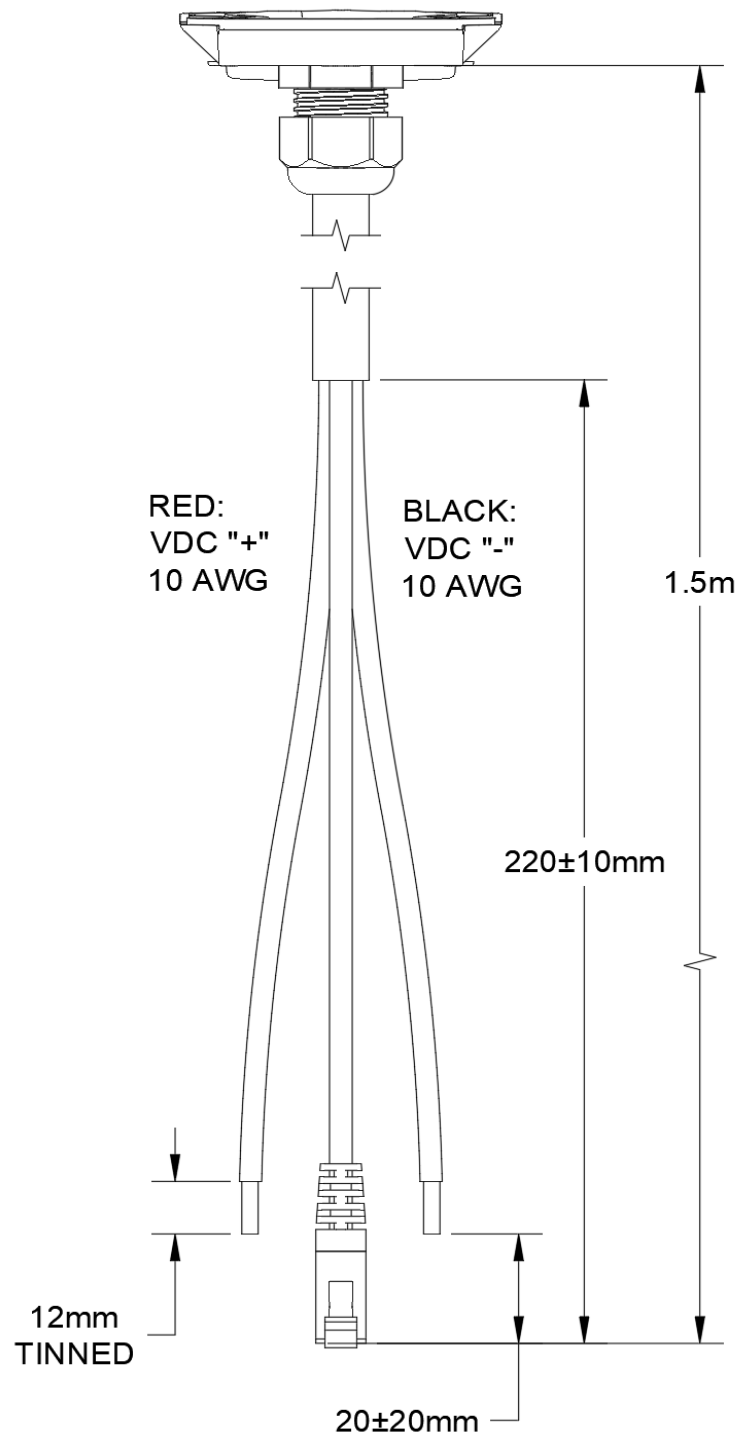


Mechanical Drawings





Mechanical Drawings





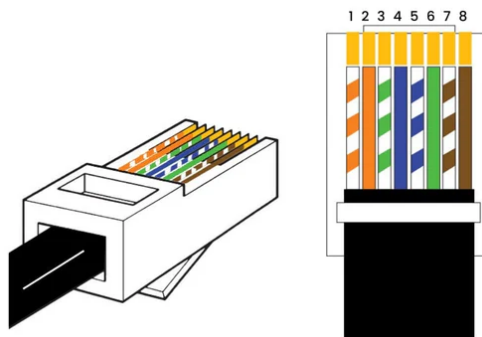
Electrical & Software Interfacing

Interface Options and Application Compatibility

There are several ways to integrate ORCA motors in applications. Below is a list of commonly supported applications, but any application that can support serial messages or analog/digital inputs and outputs can control one or more motors.

Quick Application Information				
Supported Application <i>irisdynamics.com/articles</i>	Compatible Interfaces			Required Accessory <i>See page 16/17 for details</i>
	USB	RS485/ RS422	Analog / Digital	
MATLAB, Labview	x			OrcaSDK for MATLAB/Labview ORCA-USB
General C++, Python	x			OrcaSDK for Windows, pyorcaSDK ORCA-USB
Windows Plug-and-Play	x			IrisControls Software* ORCA-USB
PLC or Microcontroller		x		ORCA Motor MODBUS User Guide None
PLC or Microcontroller			x	ORCA IO SmartHub User Guide ORCA IO Smart Hub
Pneumatic Retrofit			x	ORCA IO SmartHub User Guide ORCA IO Smart Hub

**IrisControls Software can be used in combination with any other interface to aid development and provide comprehensive real-time feedback*



Data Cable

ORCA series motors include a shielded communication cable of twisted pairs carrying the differential signals used to transmit and receive characters on two separate interfaces, as well as 5V lines which can power small external loads, or be used to power the integrated logic and sensors when no main power is provided to the motor.

Data Cable Specifications				
Pos	Use	Notes	Electrical Standard	ESD Rating
1	MODBUS RX+	120 ohm termination	Exceeds TIA-485-A	IEC 61000-4-2 Level 4
2	MODBUS RX-			
3	MODBUS TX+			
4	IrisControls TX/RX+	120 ohm termination		
5	IrisControls TX/RX-			
6	MODBUS TX-			
7	+5V	Can be used to power logic in absence of main supply. Use 4.5 to 5.5 VDC	500 mA max output	
8	GND			



Electrical & Software Interfacing

Modbus RTU Serial Interface

ORCA series motors feature a 'field-bus' serial communication interface which allows configuration, control, and monitoring. Features of the motors are offered by exposing data fields (registers) which can be written to and read from by sending and receiving characters over the serial interface.



Serial communications are implemented using a subset of the Modbus RTU specification, with additional functionality to support a high-speed stream of commands and feedback. The Modbus RTU User Manual is available for download below.

[Download Here - *irisdynamics.com/downloads*](https://www.irisdynamics.com/downloads)

IrisControls™

ORCA motors feature an optional graphical user interface called IrisControls which can be used to monitor details and configure settings. This interface provides an easy way to visually tune the internal PID position controller, set up motion profiles, add performance restrictions, and capture information while connected. IrisControls is available for download below.



[Download Here - *irisdynamics.com/downloads*](https://www.irisdynamics.com/downloads)

IO SmartHub

OPTIONAL AND SOLD SEPARATELY

The IO SmartHub provides control of ORCA Series motors in Force, Position, and Kinematic Modes through simple digital and analog inputs. Real-time force and position data are fed from the motor and provided as analog outputs. The IO SmartHub attaches to the motor's data cable (RJ45) and allows for easier integration with existing industrial control methods such as PLCs with 4-20 mA current loop outputs. Find more information in the ORCA IO SmartHub User Guide below.

[Learn More - *irisdynamics.com/downloads*](https://www.irisdynamics.com/downloads)

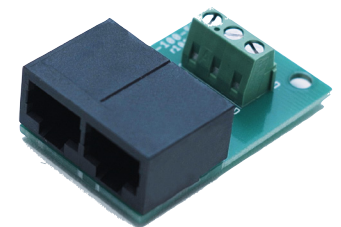


PWM Module

OPTIONAL AND SOLD SEPARATELY

An interface chip is used to enable PWM control of ORCA motor positions, while also providing the option to connect the motor simultaneously to IrisControls to facilitate motor configuration.

[Learn More - *irisdynamics.com/news/pwm-interface-for-orca-motors*](https://www.irisdynamics.com/news/pwm-interface-for-orca-motors)





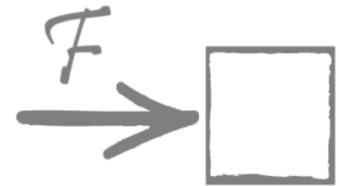
Electrical & Software Interfacing

Operating Modes

ORCA motors can operate in one of four modes of operation, enabling countless applications. Each of these modes is described in detail in the [ORCA Series Reference Manual \(RM220115\)](#)

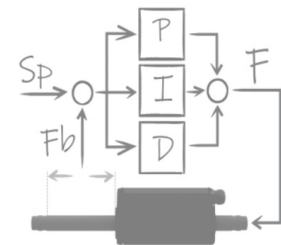
Force Mode

The motor receives a stream of user forces, and dynamically controls the amount of force produced between the shaft and stator. This allows for smooth and consistent force output. This is a great mode for polishing and grinding applications, depth control for floats, or for robotic controllers that transcend kinematics with force-aware models.



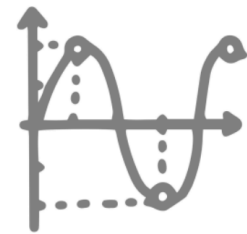
Position Mode

A classic mode of operation where a stream of position setpoints (Sp) are provided. The motor will run an internal PID controller to track the position targets, overcoming external disturbances like mass, friction, springs, gravity, etc. The internal controller's feedback loop is very fast and is stable even with high gains.



Kinematic Mode

The motor receives a trigger signal and then follows one or more configurable paths. Smooth, efficient, and repeatable motions can be achieved with all the calculation and compensation performed by the motor. This mode makes replacing pneumatic systems very easy. It simplifies system architecture, improves system performance, and reduces engineering efforts.



Haptic Mode

A unique linear motor mode that replicates springs, dampers, mass, and/or vibrations simultaneously. The on-board controller performs latency-sensitive effects like virtual hard-stops and high frequency vibrations which reduces development effort and increases haptic effect capability. This mode is perfect for force-feedback control applications and instances where the motor is manipulated by a person.





ORCA-3-12V Specifications

ORCA-3-12V

General Specifications

Supply Voltage	min	12 V	Undervoltage lockout prevents operation below 10 V.
	max	60 V	Exposure to supply voltages greater than max can cause permanent damage.
Max Supply Current	max	21.5 A	
ESD Protection	IEC 61000-4-2 Level 4		
IP Rating	IP68		
Min Chassis Temperature	min	-20 °C	
	max	70 °C	
Serial Protocol	RS485 / RS422		Full Duplex or Half Duplex; 120 Ω termination.
Message Protocol	Modbus RTU		High throughput functions codes available.
Maximum Baudrate	1.2 Mbps		
Internal Control Rate	3.0 kHz		
Motor Phases	3		
Position Sensor	Integrated Hall Array		Will report absolute position, but requires home on power-up to establish zero position.
Position Accuracy	± 250 μ m	± 0.0098 in	
Position Repeatability	± 25 μ m	± 0.001 in	
Thermal Sensors	Driver and Stator		Auto shut-off, adjustable limits.

Force and Power and Speed

		Motor Temp	12 Vdd	24 Vdd	48 Vdd	60 Vdd
See the Typical Characteristics section below for detailed information on performance versus speed						
Max Force			138 N 30.9 lbf	182 N 40.8 lbf	182 N 40.8 lbf	182 N 40.8 lbf
Max Power	20°C		258 W	450 W	450 W	450 W
Max Force Duration			35 s	17 s	17 s	17 s
Force Constant (Kf)			8.6 N/ $\sqrt{W}$			
Max Force	70°C		116 N 26 lbf	180 N 40.4 lbf	180 N 40.4 lbf	180 N 40.4 lbf
Max Power			219 W	529 W	529 W	529 W
Max Force Duration			<1 s			
Force Constant (Kf)			7.8 N/ $\sqrt{W}$			
Max Speed	full range		1.6 m/s 64 in/s	3.2 m/s 128 in/s	6.5 m/s 256 in/s	8.1 m/s 320 in/s
Force Resolution*	full range		0.5 N		0.113 lbf	

*Resolution value represents average use case with minimal side load and consistent temperature. Contact Iris Dynamics for more information and recommendations for improved force control.

Cooling

		Condition	Power	Force
Continuous Power/Force		20°C ambient, still air	18 W	33 N 7 lbf
		20°C ambient, single fan @ 10 CFM	57 W	59 N 13 lbf
		20°C ambient, 2x 60 mm fans @ 39 CFM each	64 W	63 N 14 lbf

For information on a specific application's thermal feasibility reach out to sales@irisdynamics.com



ORCA-3-36V Specifications

ORCA-3-36V

General Specifications

Supply Voltage	min	12 V	Undervoltage lockout prevents operation below 10 V.
	max	60 V	Exposure to supply voltages greater than max can cause permanent damage.
Max Supply Current	max	21.1 A	
ESD Protection	IEC 61000-4-2 Level 4		
IP Rating	IP68		
Min Chassis Temperature	min	-20 °C	
	max	70 °C	
Serial Protocol	RS485 / RS422		Full Duplex or Half Duplex; 120 Ω termination.
Message Protocol	Modbus RTU		High throughput functions codes available.
Maximum Baudrate	1.2 Mbps		
Internal Control Rate	3.0 kHz		
Motor Phases	3		
Position Sensor	Integrated Hall Array		Will report absolute position, but requires home on power-up to establish zero position
Position Accuracy	± 250 μ m	± 0.0098 in	
Position Repeatability	± 25 μ m	± 0.001 in	
Thermal Sensors	Driver and Stator		
	Auto shut-off, adjustable limits.		

Force and Power and Speed

	Motor Temp	12 Vdd	24 Vdd	48 Vdd	60 Vdd
See the Typical Characteristics section below for detailed information on performance versus speed					
Max Force		95 N 21.3 lbf	189 N 42.5 lbf	281 N 63.1 lbf	281 N 63.1 lbf
Max Power	20°C	115 W	459 W	1012 W	1012 W
Max Force Duration		78 s	19 s	7 s	7 s
Force Constant (Kf)		8.8 N/ $\sqrt$ W			
Max Force		79 N 17.9 lbf	159 N 35.7 lbf	278 N 62.5 lbf	278 N 62.5 lbf
Max Power	70°C	97 W	390 W	1190 W	1190 W
Max Force Duration		<1 s			
Force Constant (Kf)		8.1 N/ $\sqrt$ W			
Max Speed	full range	1.1 m/s 41 in/s	2.1 m/s 83 in/s	4.2 m/s 166 in/s	5.3 m/s 207 in/s
Force Resolution*	full range	0.5 N 0.113 lbf			

*Resolution value represents average use case with minimal side load and consistent temperature. Contact Iris Dynamics for more information and recommendations for improved force control.

Cooling

	Condition	Power	Force
Continuous Power/Force	20°C ambient, still air	18 W	34 N 8 lbf
	20°C ambient, single fan @ 10 CFM	57 W	61 N 14 lbf
	20°C ambient, 2x 60 mm fans @ 39 CFM each	64 W	64 N 14 lbf

For information on a specific application's thermal feasibility reach out to sales@irisdynamics.com



ORCA-6-24V Specifications

ORCA-6-24V

General Specifications

Supply Voltage	min	12 V	Undervoltage lockout prevents operation below 10 V.
	max	60 V	Exposure to supply voltages greater than max can cause permanent damage.
Max Supply Current	max	37.5 A	
ESD Protection	IEC 61000-4-2 Level 4		
IP Rating	IP68		
Min Chassis Temperature	min	-20 °C	
	max	70 °C	
Serial Protocol	RS485 / RS422		Full Duplex or Half Duplex; 120 Ω termination.
Message Protocol	Modbus RTU		High throughput functions codes available.
Maximum Baudrate	1.2 Mbps		
Internal Control Rate	3.0 kHz		
Motor Phases	4		
Position Sensor	Integrated Hall Array		Will report absolute position, but requires home on power-up to establish zero position
Position Accuracy	$\pm 150 \mu\text{m}$	$\pm 0.0059 \text{ in}$	
Position Repeatability	$\pm 15 \mu\text{m}$	$\pm 0.0006 \text{ in}$	
Thermal Sensors	Driver and Stator		Auto shut-off, adjustable limits.

Force and Power and Speed

	Motor Temp	12 Vdd	24 Vdd	48 Vdd	60 Vdd
See the Typical Characteristics section below for detailed information on performance versus speed					
Max Force		215 N 48.3 lbf	426 N 95.7 lbf	426 N 95.7 lbf	426 N 95.7 lbf
Max Power	20°C	229 W	899 W	899 W	899 W
Max Force Duration		78 s	20 s	17 s	17 s
Force Constant (Kf)		14.2 N/ $\sqrt{\text{W}}$			
Max Force	70°C	181 N 40.6 lbf	361 N 81.3 lbf	421 N 94.7 lbf	421 N 94.7 lbf
Max Power		195 W	779 W	1058 W	1058 W
Max Force Duration		<1 s			
Force Constant (Kf)		12.9 N/ $\sqrt{\text{W}}$			
Max Speed	full range	1.1 m/s 42 in/s	2.1 m/s 84 in/s	4.3 m/s 168 in/s	5.3 m/s 210 in/s
Force Resolution*	full range	0.5 N 0.113 lbf			

*Resolution value represents average use case with minimal side load and consistent temperature. Contact Iris Dynamics for more information and recommendations for improved force control.

Cooling

	Condition	Power	Force
Continuous Power/Force	20°C ambient, still air	34 W	75 N 17 lbf
	20°C ambient, single fan @ 10 CFM	106 W	133 N 30 lbf
	20°C ambient, 2x 60 mm fans @ 39 CFM each	139 W	153 N 34 lbf

For information on a specific application's thermal feasibility reach out to sales@irisdynamics.com



ORCA-6-48V Specifications

ORCA-6-48V

General Specifications

Supply Voltage	min	12 V	Undervoltage lockout prevents operation below 10 V.
	max	60 V	Exposure to supply voltages greater than max can cause permanent damage.
Max Supply Current	max	34 A	
ESD Protection	IEC 61000-4-2 Level 4		
IP Rating	IP68		
Min Chassis Temperature	min	-20 °C	
	max	70 °C	
Serial Protocol	RS485 / RS422		Full Duplex or Half Duplex; 120 Ω termination.
Message Protocol	Modbus RTU		High throughput functions codes available.
Maximum Baudrate	1.2 Mbps		
Internal Control Rate	3.0 kHz		
Motor Phases	4		
Position Sensor	Integrated Hall Array		Will report absolute position, but requires home on power-up to establish zero position
Position Accuracy	$\pm 150 \mu\text{m}$	$\pm 0.0059 \text{ in}$	
Position Repeatability	$\pm 15 \mu\text{m}$	$\pm 0.0006 \text{ in}$	
Thermal Sensors	Driver and Stator		Auto shut-off, adjustable limits.

Force and Power and Speed

		Motor Temp	12 Vdd	24 Vdd	48 Vdd	60 Vdd
See the Typical Characteristics section below for detailed information on performance versus speed						
Max Force			143 N 32.2 lbf	287 N 64.4 lbf	573 N 128.9 lbf	638 N 143.5 lbf
Max Power	20°C		102 W	408 W	1631 W	2023 W
Max Force Duration			175 s	44 s	11 s	8 s
Force Constant (Kf)			14.2 N/ $\sqrt{\text{W}}$			
Max Force			120 N 27.1 lbf	241 N 54.2 lbf	482 N 108.3 lbf	602 N 135.4 lbf
Max Power	70°C		87 W	346 W	1386 W	2165 W
Max Force Duration			<1 s			
Force Constant (Kf)			12.9 N/ $\sqrt{\text{W}}$			
Max Speed	full range		0.7 m/s 28 in/s	1.4 m/s 56 in/s	2.8 m/s 112 in/s	3.6 m/s 140 in/s
Force Resolution*	full range		0.5 N		0.113 lbf	

*Resolution value represents average use case with minimal side load and consistent temperature. Contact Iris Dynamics for more information and recommendations for improved force control.

Cooling

		Condition	Power	Force
Continuous Power/Force		20°C ambient, still air	34 W	75 N 17 lbf
		20°C ambient, single fan @ 10 CFM	106 W	133 N 30 lbf
		20°C ambient, 2x 60 mm fans @ 39 CFM each	139 W	153 N 34 lbf

For information on a specific application's thermal feasibility reach out to sales@irisdynamics.com



ORCA-15-48V Specifications

ORCA-15-48V

General Specifications

Supply Voltage	min	12 V	Undervoltage lockout prevents operation below 10 V.
	max	60 V	Exposure to supply voltages greater than max can cause permanent damage.
Max Supply Current	max	37.5 A	
ESD Protection	IEC 61000-4-2 Level 4		
IP Rating	IP68		
Min Chassis Temperature	min	-20 °C	
	max	70 °C	
Serial Protocol	RS485 / RS422		Full Duplex or Half Duplex; 120 Ω termination.
Message Protocol	Modbus RTU		High throughput functions codes available.
Maximum Baudrate	1.2 Mbps		
Internal Control Rate	3.0 kHz		
Motor Phases	4		
Position Sensor	Integrated Hall Array		Will report absolute position, but requires home on power-up to establish zero position.
Position Accuracy	$\pm 150 \mu\text{m}$	$\pm 0.0059 \text{ in}$	
Position Repeatability	$\pm 15 \mu\text{m}$	$\pm 0.0006 \text{ in}$	
Thermal Sensors	Driver and Stator		
	Auto shut-off, adjustable limits.		

Force and Power and Speed

	Motor Temp	12 Vdd	24 Vdd	48 Vdd	60 Vdd
See the Typical Characteristics section below for detailed information on performance versus speed					
Max Force		214 N 48.2 lbf	429 N 96.3 lbf	857 N 192.7 lbf	1061 N 238.5 lbf
Max Power	20°C	92 W	367 W	1468 W	2248 W
Max Force Duration		462 s	115 s	29 s	19 s
Force Constant (Kf)		22.4 N/ $\sqrt{\text{W}}$			
Max Force	70°C	180 N 40.5 lbf	360 N 81 lbf	721 N 162 lbf	901 N 202.5 lbf
Max Power		78 W	312 W	1247 W	1948 W
Max Force Duration		<1 s			
Force Constant (Kf)		20.4 N/ $\sqrt{\text{W}}$			
Max Speed	full range	0.4 m/s 17 in/s	0.9 m/s 34 in/s	1.7 m/s 67 in/s	2.1 m/s 84 in/s
Force Resolution*	full range	0.5 N 0.113 lbf			

*Resolution value represents average use case with minimal side load and consistent temperature. Contact Iris Dynamics for more information and recommendations for improved force control.

Cooling

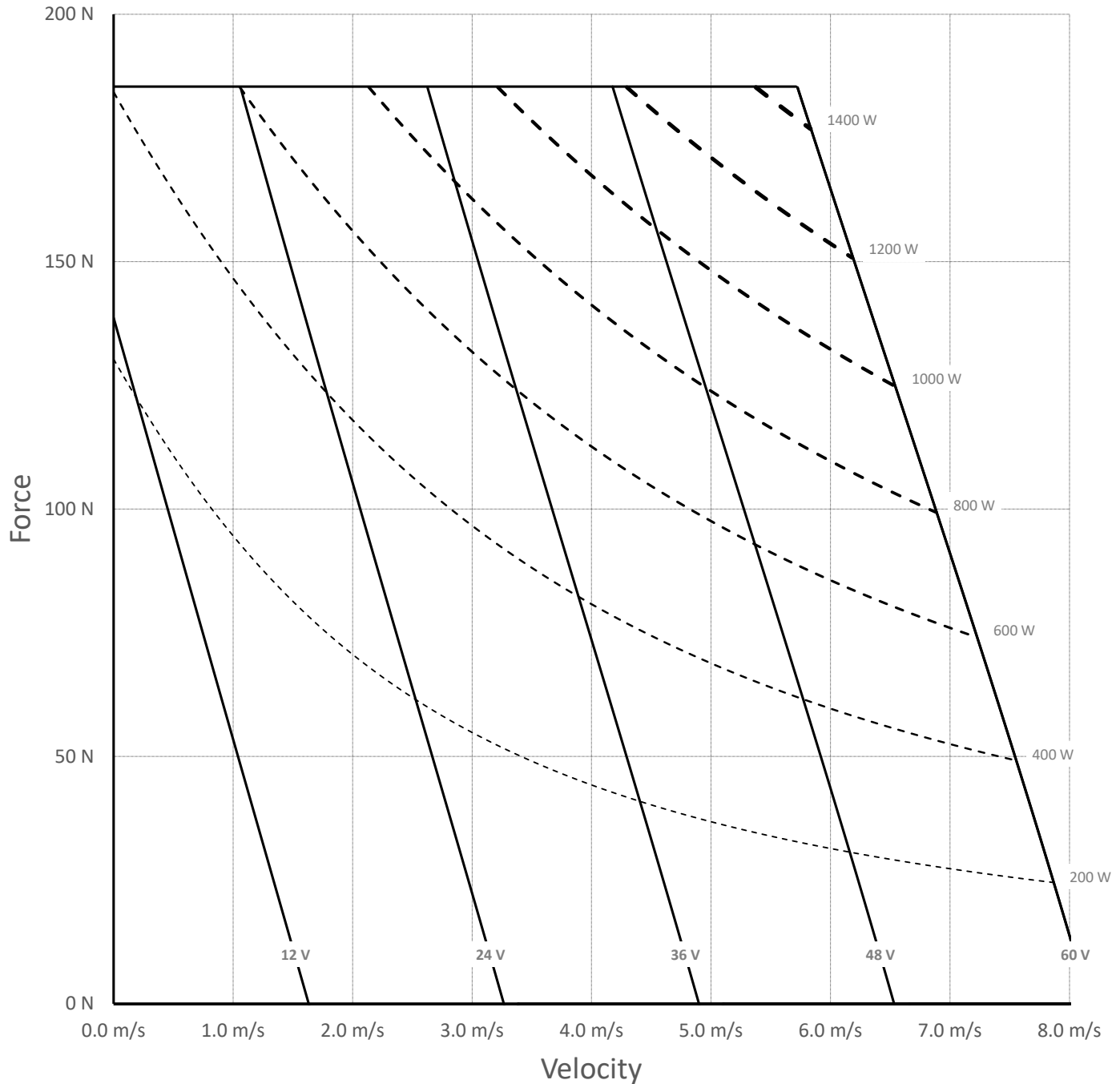
	Condition	Power	Force
Continuous Power/Force	20°C ambient, still air	73 W	174 N 39 lbf
	20°C ambient, single fan @ 10 CFM	346 W	380 N 85 lbf
	20°C ambient, 2x 60 mm fans @ 39 CFM each	358 W	386 N 87 lbf

For information on a specific application's thermal feasibility reach out to sales@irisdynamics.com



ORCA-3-12V Force and Speed

ORCA-3-12V Force Limits (25 C)



Characteristics are identical for forward (shaft extension), and reverse motions.

Dashed lines indicate force maximus due to power supply limits.

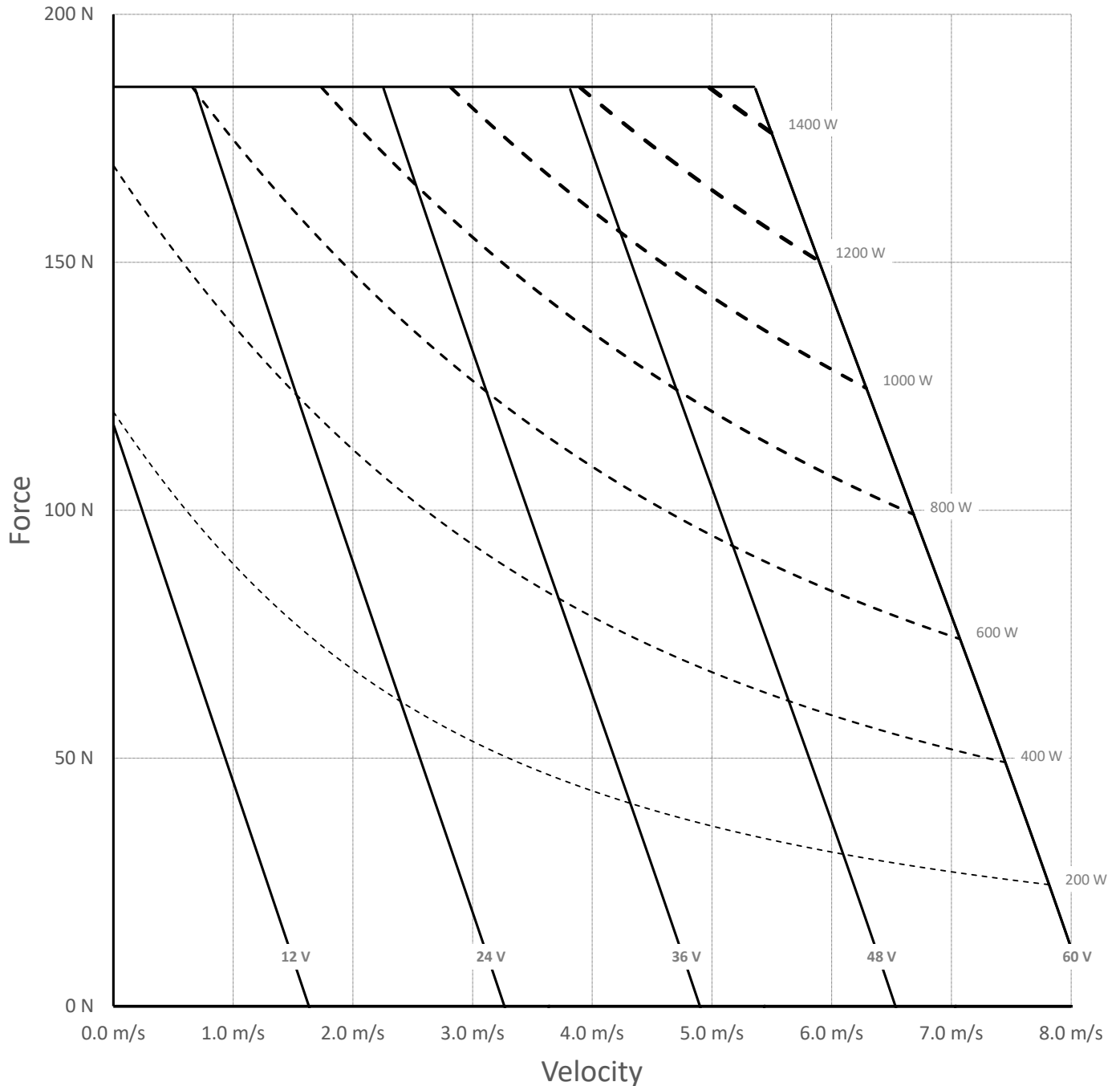
Solid lines indicate force maximums due to power supply voltage.

Valid forces must meet both voltage and power requirements.



ORCA-3-12V Force and Speed

ORCA-3-12V Force Limits (70 C)

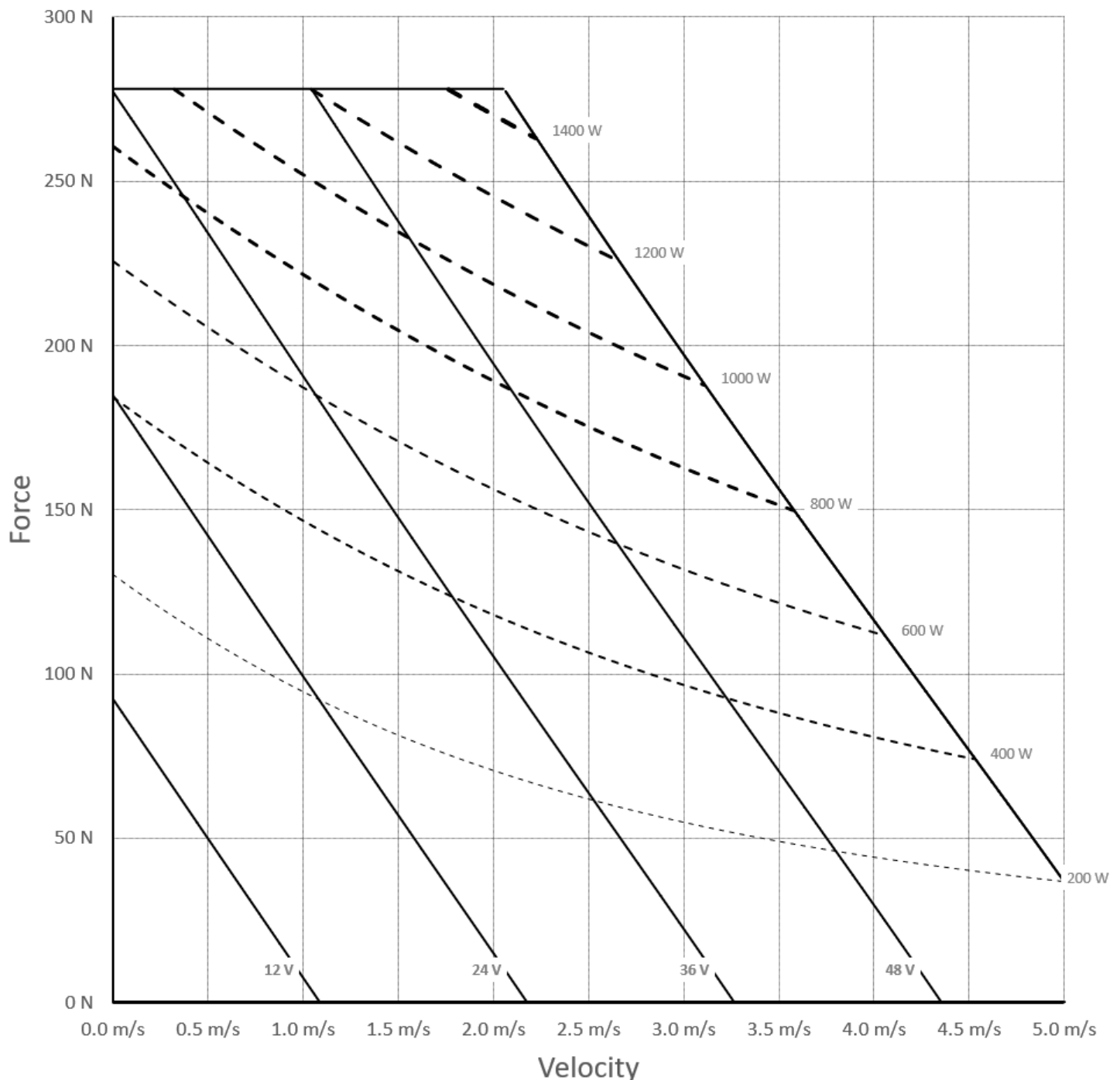


Characteristics are identical for forward (shaft extension), and reverse motions.
Dashed lines indicate force maximus due to power supply limits.
Solid lines indicate force maximums due to power supply voltage.
Valid forces must meet both voltage and power requirements.



ORCA-3-36V Force and Speed

ORCA-3-36V Force Limits (25 C)



Characteristics are identical for forward (shaft extension), and reverse motions.

Dashed lines indicate force maximums due to power supply limits.

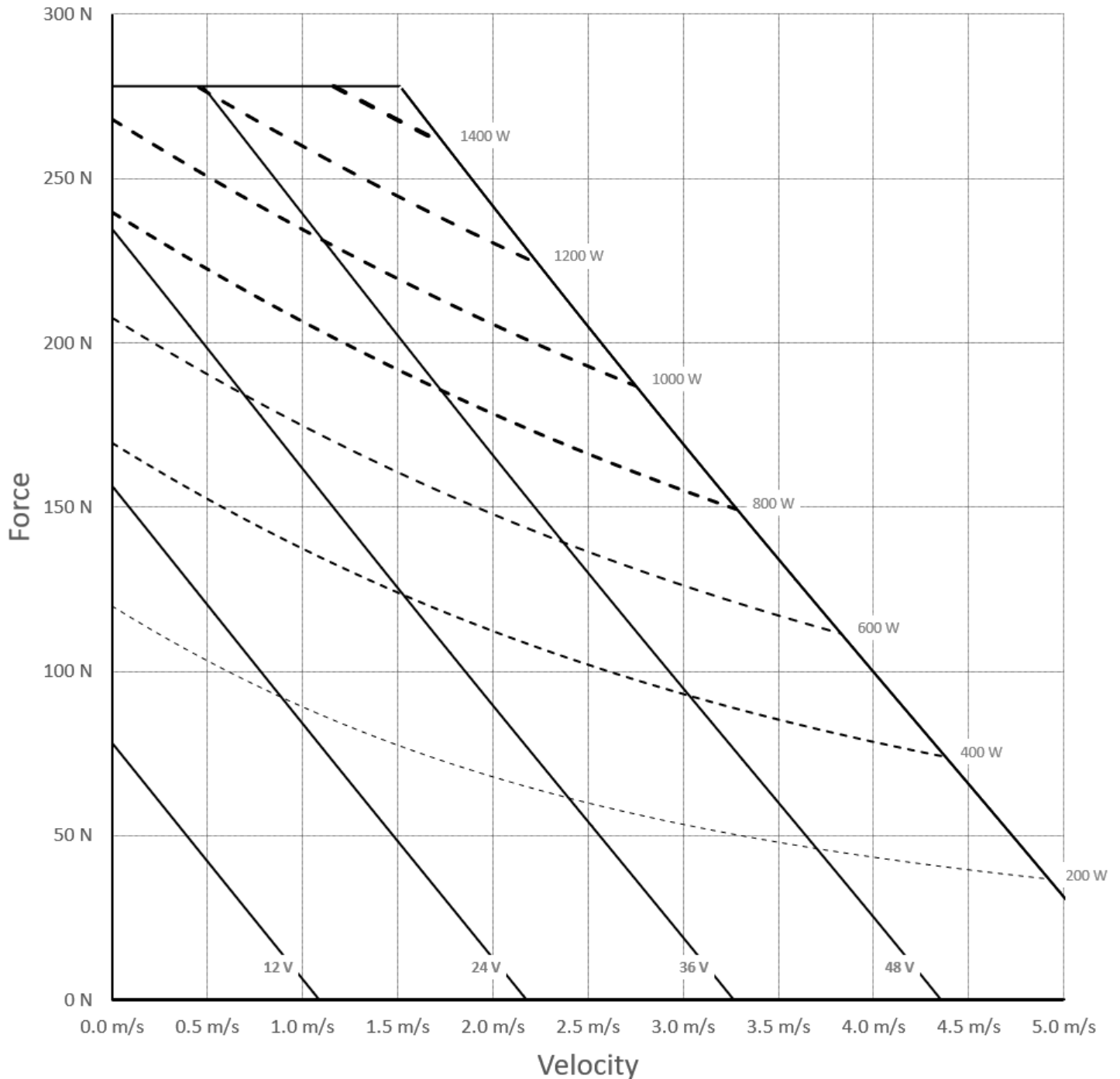
Solid lines indicate force maximums due to power supply voltage.

Valid forces must meet both voltage and power requirements.



ORCA-3-36V Force and Speed

ORCA-3-36V Force Limits (70 C)



Characteristics are identical for forward (shaft extension), and reverse motions.

Dashed lines indicate force maximums due to power supply limits.

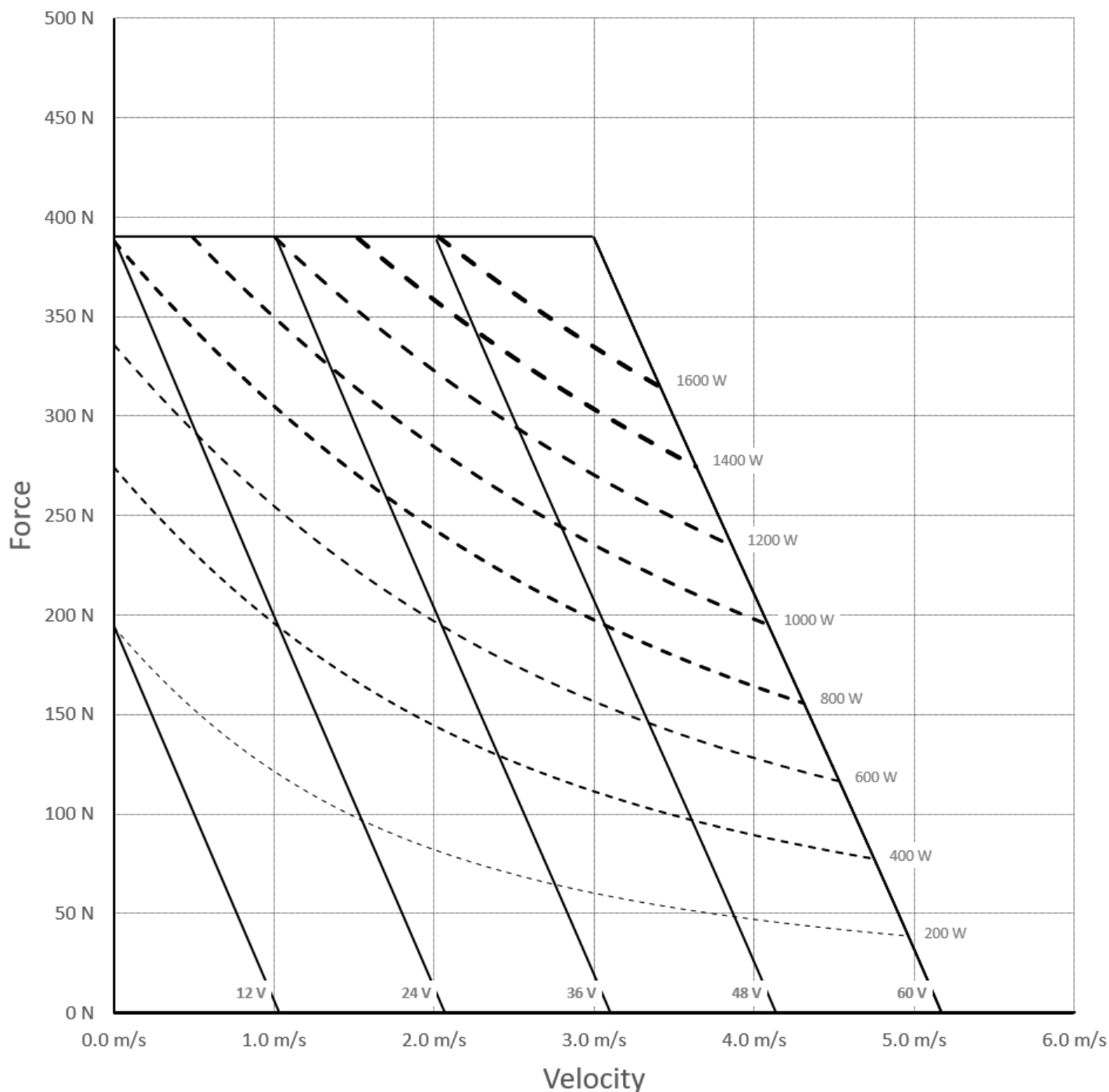
Solid lines indicate force maximums due to power supply voltage.

Valid forces must meet both voltage and power requirements.



ORCA-6-24V Force and Speed

ORCA-6-24V Force Limits (25 C)



Characteristics are identical for forward (shaft extension), and reverse motions.

Dashed lines indicate force maximus due to power supply limits.

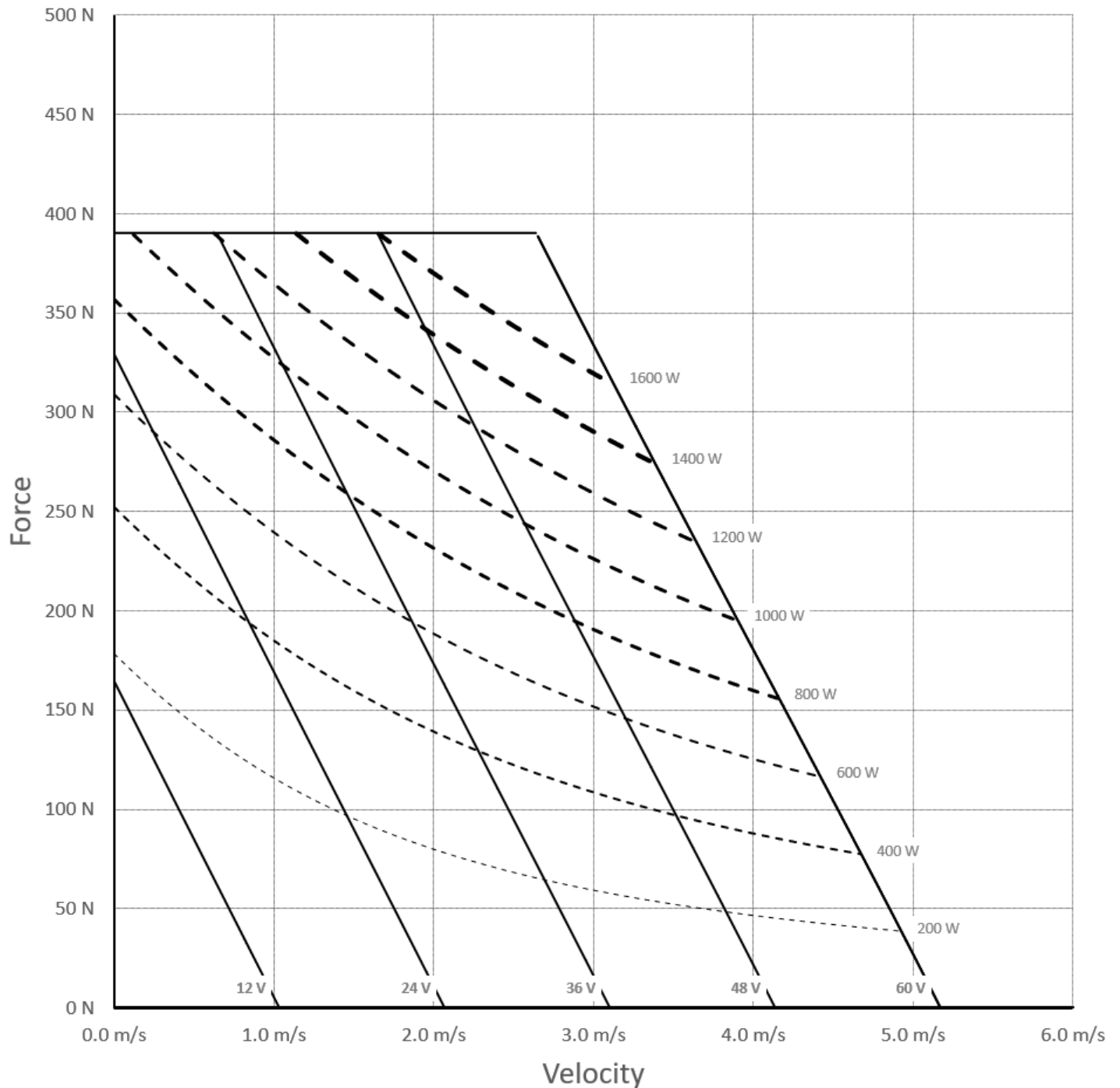
Solid lines indicate force maximums due to power supply voltage.

Valid forces must meet both voltage and power requirements.



ORCA-6-24V Force and Speed

ORCA-6-24V Force Limits (70 C)



Characteristics are identical for forward (shaft extension), and reverse motions.

Dashed lines indicate force maximums due to power supply limits.

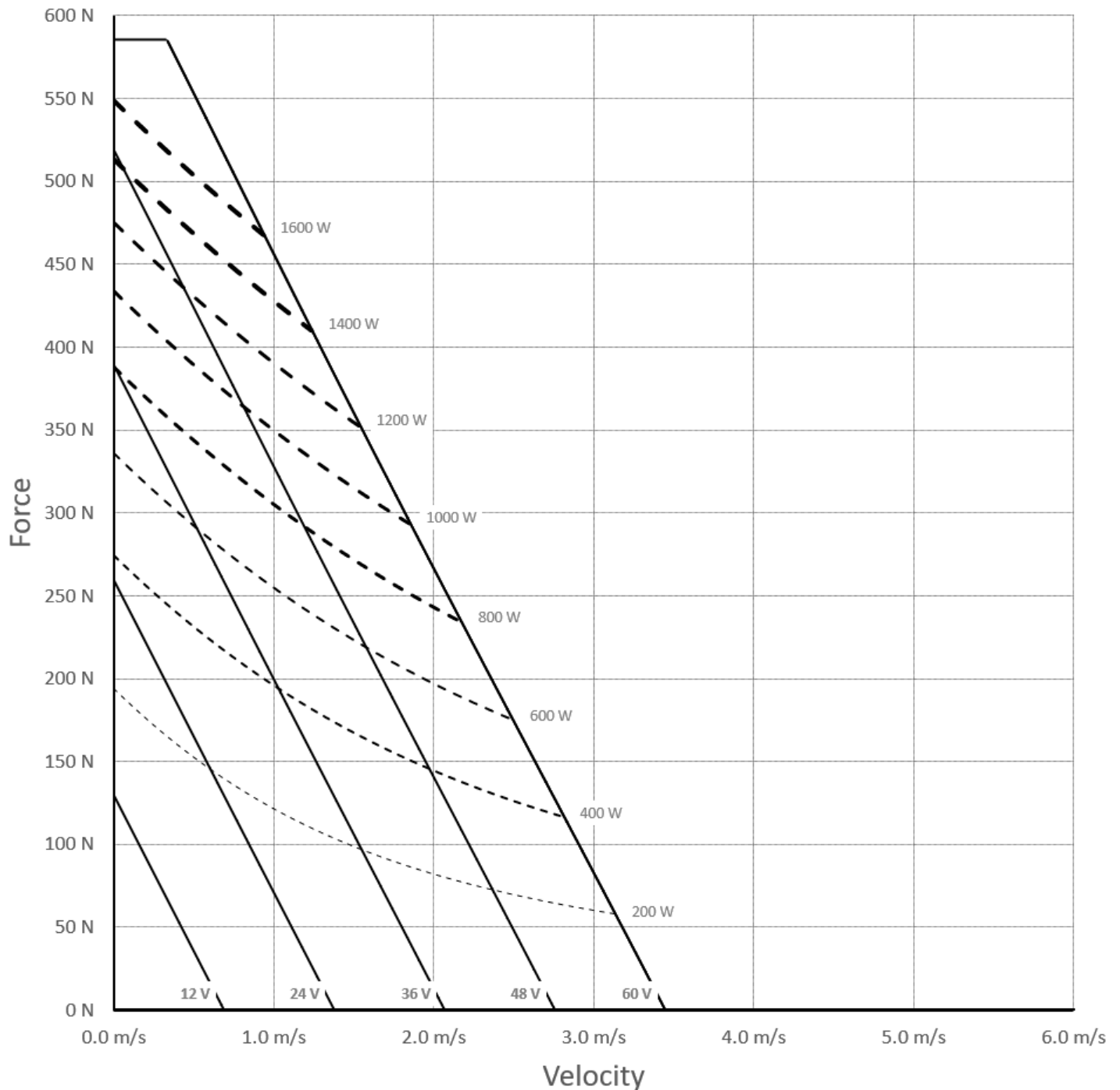
Solid lines indicate force maximums due to power supply voltage.

Valid forces must meet both voltage and power requirements.



ORCA-6-48V Force and Speed

ORCA-6-48V Force Limits (25 C)



Characteristics are identical for forward (shaft extension), and reverse motions.

Dashed lines indicate force maximums due to power supply limits.

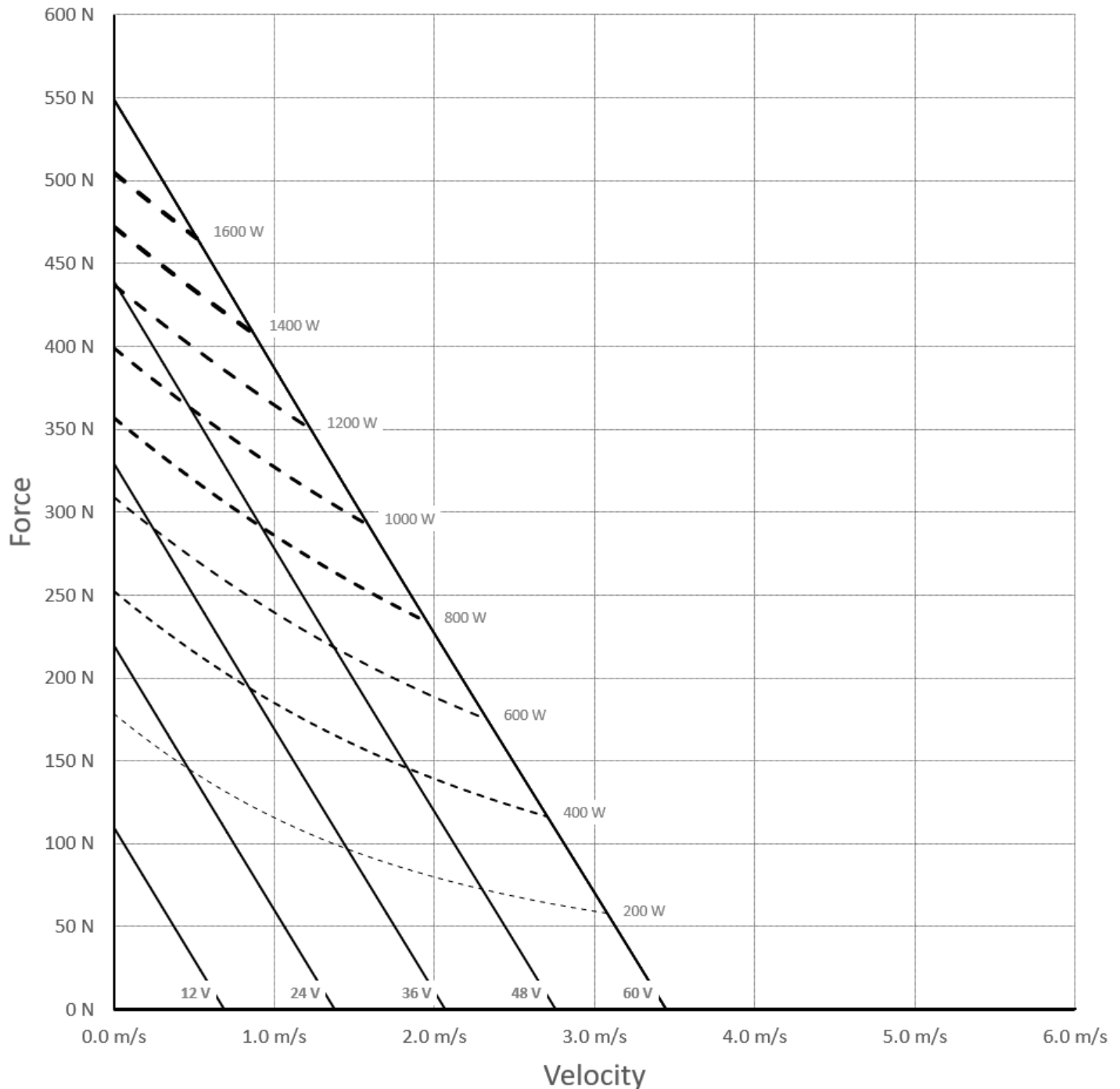
Solid lines indicate force maximums due to power supply voltage.

Valid forces must meet both voltage and power requirements.



ORCA-6-48V Force and Speed

ORCA-6-48V Force Limits (70 C)



Characteristics are identical for forward (shaft extension), and reverse motions.

Dashed lines indicate force maximums due to power supply limits.

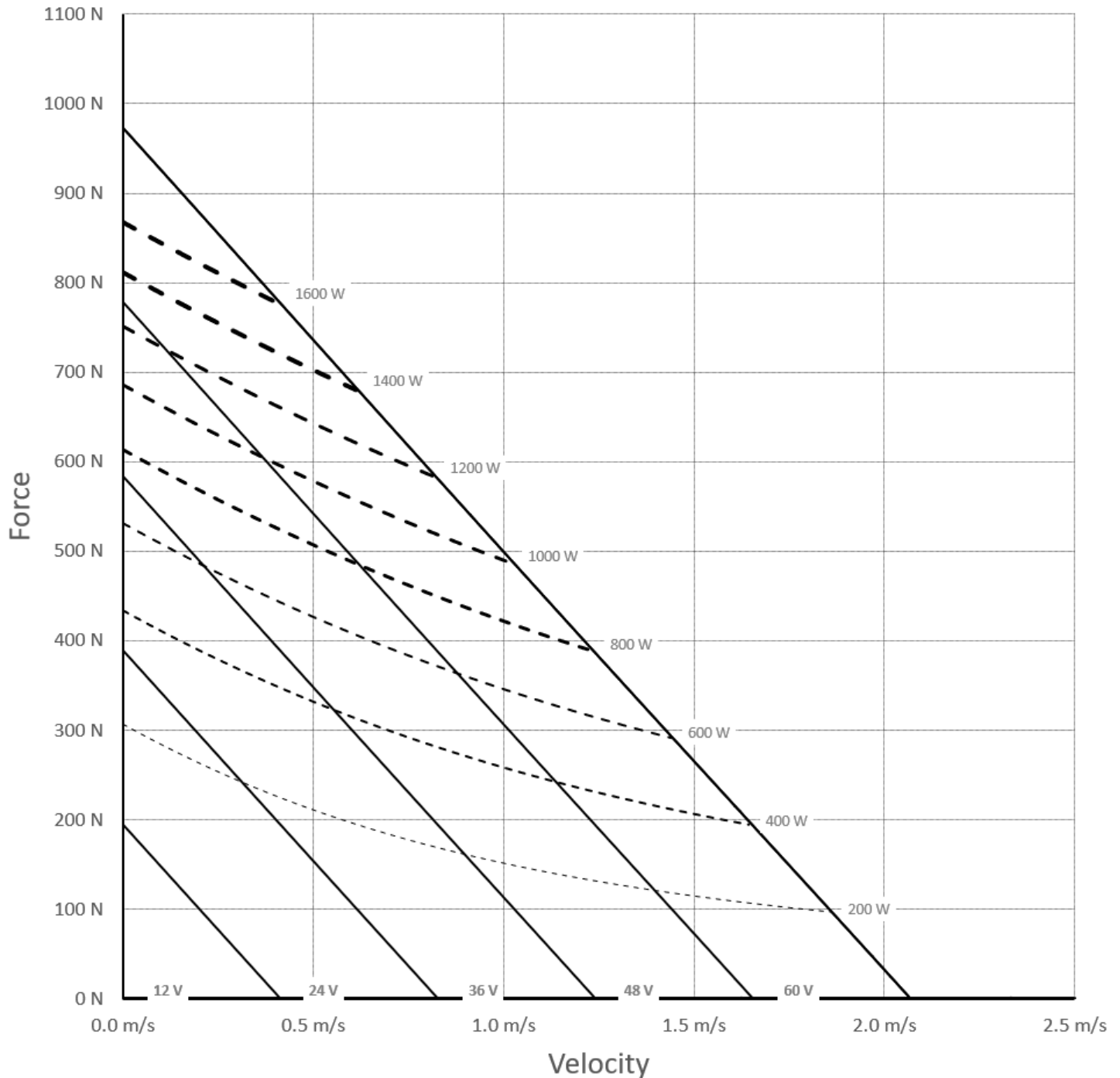
Solid lines indicate force maximums due to power supply voltage.

Valid forces must meet both voltage and power requirements.



ORCA-15-48V Force and Speed Plot

ORCA-15-48V Force Limits (25 C)



Characteristics are identical for forward (shaft extension), and reverse motions.

Dashed lines indicate force maximums due to power supply limits.

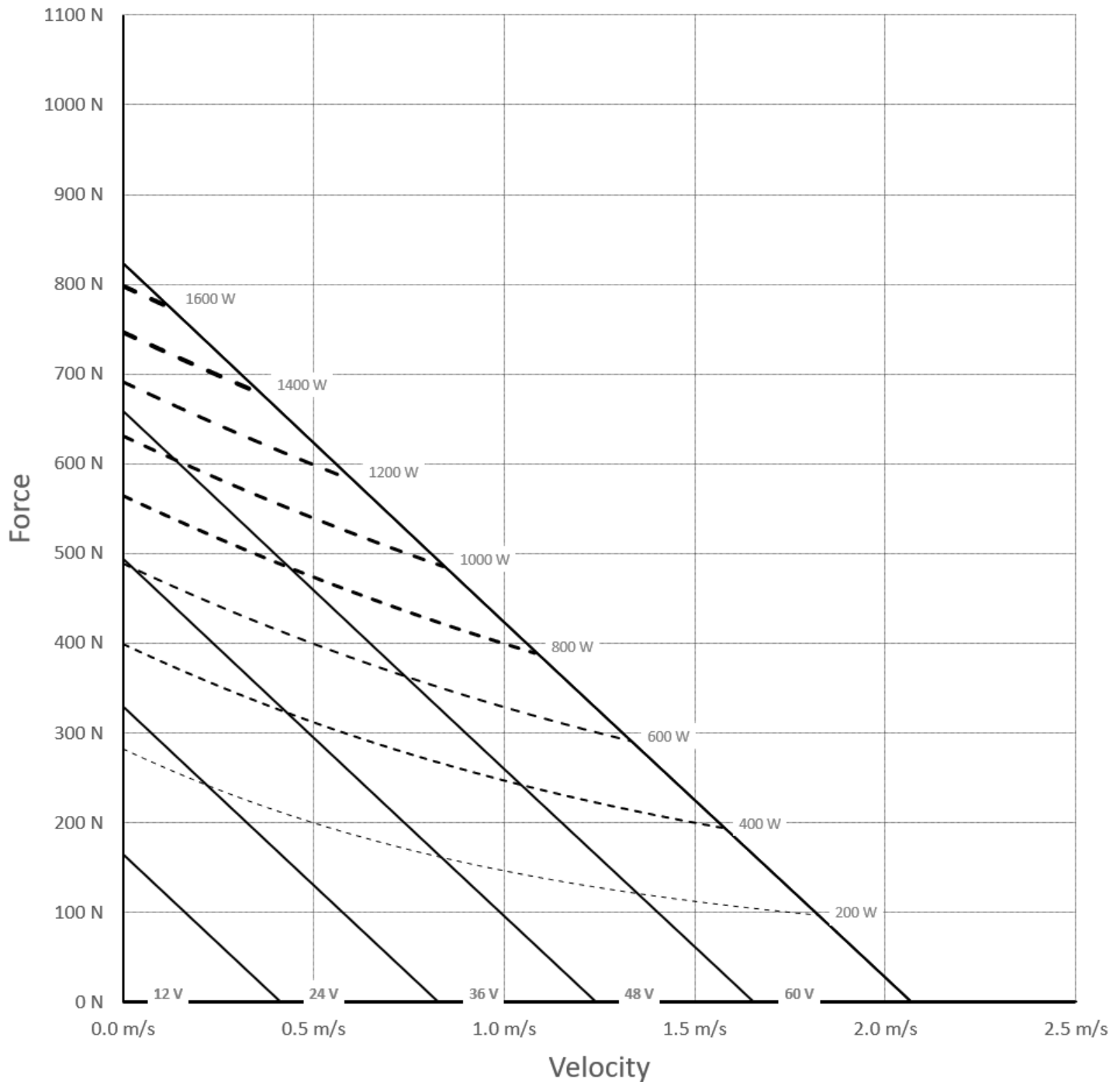
Solid lines indicate force maximums due to power supply voltage.

Valid forces must meet both voltage and power requirements.



ORCA-15-48V Force and Speed

ORCA-15-48V Force Limits (70 C)



Characteristics are identical for forward (shaft extension), and reverse motions.
Dashed lines indicate force maximums due to power supply limits.
Solid lines indicate force maximums due to power supply voltage.
Valid forces must meet both voltage and power requirements.

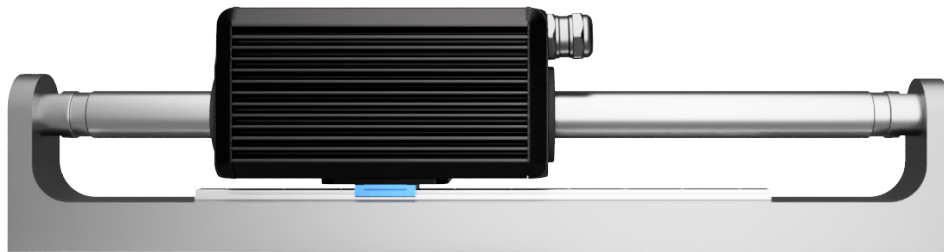


Mounting Options



Moving Shaft

In a moving shaft configuration, the stator is fixed, and the shaft actuates the load. Load support may be required to reduce bushing sideloading.



Moving Stator

In moving stator configurations, the shaft is fixed on both ends and the stator moves. Multiple stators can be installed along a single shaft if the application requires it. Moving stators are advantageous for applications with length restrictions.



Clevis/Universal Joint

An optional rear shaft cover allows mounting using ISO 1552 50 mm pneumatic tube attachments, enabling the line of action to move the load. Useful for replacing traditional lead screws or pneumatic actuators. Rear shaft cover is cut to match desired shaft length. Optional rear plates can be modified to facilitate chosen mounting hardware.

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+1 888-995-7050

2-3948 Quadra Street
Victoria, BC Canada V8X 1J6

Visit the Website: www.irisdynamics.com

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