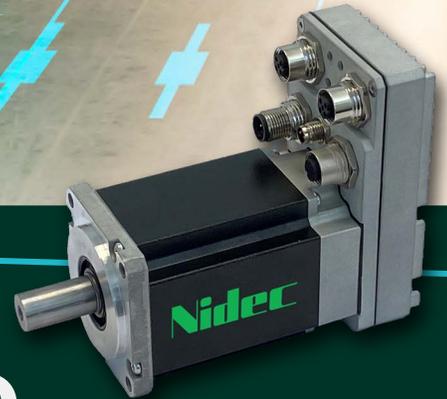


**Nidec**

Automation

Driving  
Industry  
Forward



# Distributor Guide

# EXCEPTIONAL AUTOMATION

Headquartered in St. Louis, Missouri, Nidec Automation designs and manufactures innovative precision electric motors, gearmotors and drives for modern automation applications. Nidec Automation's sophisticated solutions increase the speed, reliability and safety of autonomous guided vehicles, automated storage & retrieval systems, conveyance systems, and robotics applications.

Nidec Automation also delivers geared solutions and other specialty motor and drive technologies for applications including HVLS fans, marine motors, door access & entrance systems, pellet stoves & grills, pool pumps, floor care, commercial kitchen automation equipment and wind energy. With manufacturing and engineering operations worldwide, Nidec Automation is your strategic partner for meeting the productivity demands of a busy world.

From concept to completion, you can rest assured that we'll use our Nidec know-how to our Distributor Partners. From concept to completion, you can rest assured that we'll use our Nidec know-how to help make your customers' dreams of exceptional automation come true.

## Driving Industry Forward





**Nidec**  
**Automation**



# Driving Industry Forward

**Nidec**

Automation

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# Frameless Motors – D Series

Lightweight, frameless motors delivering low inertia, high efficiency and high torque density in compact sizes for applications in the fields of robotics, automation, medical, industrial, semiconductors and more. What makes frameless brushless DC motors so unique, is their versatility in a wide range of applications.

**Torque Range (Continuous):** 0.145 Nm to 2.97 Nm

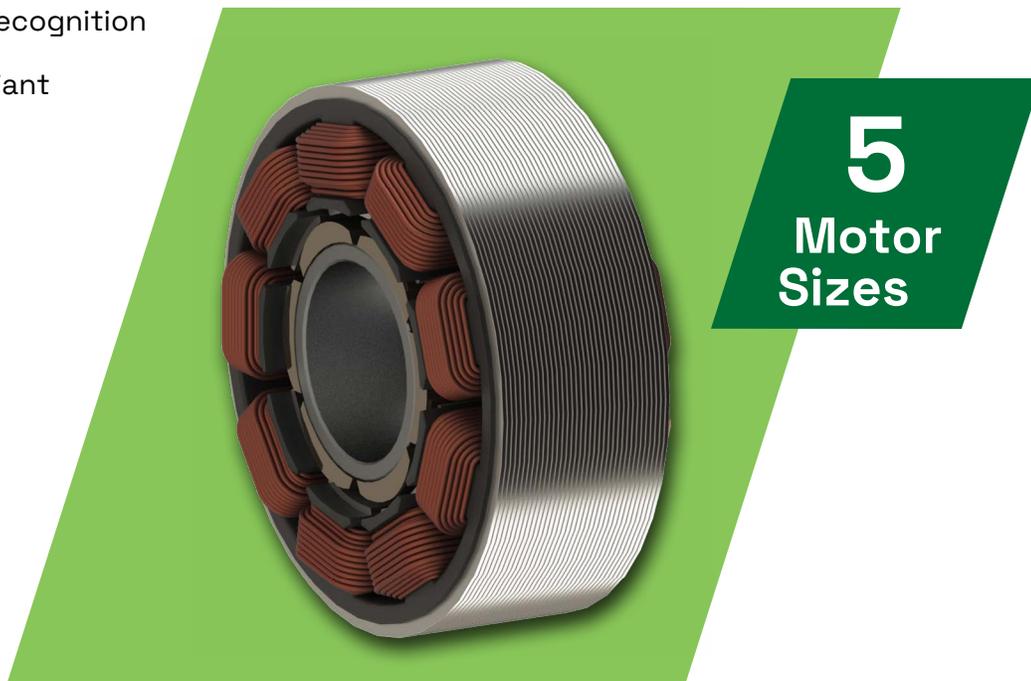
**Torque Range (Peak):** 0.457 Nm to 9.68 Nm

**Power:** 73 W to 498 W

**Warranty:** One-year limited warranty

## Frameless Motor Features & Benefits

- High torque density in a space-saving package
- High torque to inertia ratio for quick responsiveness and precision control
- Large rotor interior diameter for convenient cable routing
- Standard 200 mm lead lengths
- Low cogging torque for a smooth, steady operation
- Machine wound for high reliability with bondable magnet wire for a compact, self-supporting coil
- Constructed with corrosion-inhibitive materials
- Supported by rigorous testing for performance and reliability
- Class F insulation
- UL agency recognition
- RoHS compliant



# Frameless Motors – D Series

Frameless BLDC motors fit more easily into a vast array of smaller machines that require precision and higher torque density. Additionally, frameless motors are increasingly used to replace heavier, less efficient hydraulic components in machines, that cost less to operate and maintain, with the added benefit of being environmentally friendly.

Frameless Motors – D Series					
Part Number	D35	D52	D64	D77	D100
Standard bus voltage (Vdc)	48	48	48	48	48
Standard outer diameter (mm)	35	52	64	77	100
Standard stack heights (mm)	20.5	18.5	25.5	28	32
Data Below is Based on Standard Stack Height at 48V					
Rated Speed (RPM)	4800	2400	2400	2400	1600
No-load Speed (RPM)	10000	4500	3500	3300	2900
Rated torque (Nm)	0.145	0.39	0.76	1.69	2.97
Continuous Stall Torque (Nm)	0.183	0.46	0.86	1.88	3.23
Peak torque (Nm)	0.457	1.38	2.59	5.63	9.68
Rated power (W)	73	98	191	425	498
Ke (Vrms/kRPM)	3.21	7.42	9.55	10.15	11.44
Kt (Nm/Arms)	0.053	0.123	0.158	0.168	0.189
Rated current (Arms)	3.14	3.61	5.41	11.19	17.44
Peak current (Arms)	9.68	12.46	18.03	36.47	55.63
Standard inertia (kgcm <sup>2</sup> )	0.013	0.047	0.158	0.45	1.6
Stator insulation rating (deg C)	155	155	155	155	155
Stator weight (kg)	0.077	0.172	0.417	0.635	1.193
Rotor weight (kg)	0.027	0.045	0.099	0.158	0.326
Number of poles	6	6	8	10	10
R (ph-ph) (Ohms)	2.41	1.6	0.752	0.244	0.1
L (ph-ph) (mH)	1.4	2.5	1.51	0.74	0.33
Air gap (mm)	0.50	0.50	0.50	0.50	0.76



# Ultra Low Voltage Servo Motor Series – 48V

**Unimotor HD™** Unimotor HD is a high dynamic brushless electronically commutated servo motor ranging from 48 Vdc input voltage, this ultra low voltage range is designed to be compact, precise and provide standard performance specifications.

## Ordering Information

- IP65 conformance, sealing against water spray & dust when mounted & connected with optional connectors (reduced to IP50 with flying leads)

# 48V

Part Number	Frame size	Motor voltage	Stator length	Rated speed	Brake
060LDB300QFCTC 060LDB306LFCTC 060LDB306QFCTC 060LDB300LFCTC	060	LD = 48V	B	30 = 3000 rpm	0 = Not Fitted (Std) 6 = Parking Brake
067LDB300LFCRC 067LDB300QFCRC 067LDB306LFCRC 067LDB306QFCRC	067	LD = 48V	B	30 = 3000 rpm	0 = Not Fitted (Std) 6 = Parking Brake
089LDA300LFCRC 089LDA300QFCRC 089LDA306QFCRC	089	LD = 48V	A	30 = 3000 rpm	0 = Not Fitted (Std) 6 = Parking Brake
115LDA100QFCRC 115LDA106QFCRC	115	LD = 48V	A	10 = 1000 rpm	0 = Not Fitted (Std) 6 = Parking Brake
142LDA200GFCRC 142LDA206GFCRC	142	LD = 48V	A	20 = 2000 rpm	0 = Not Fitted (Std) 6 = Parking Brake
<b>EXAMPLE</b>	<b>060</b>	<b>LD</b>	<b>B</b>	<b>30</b>	<b>0</b>

# Unimotor HD for Ultra Low Voltage Applications

are designed for use in pulse duty applications where rapid acceleration and deceleration are required. With motion and reliable on long-term and energy-efficient battery-operated applications. The following pages

- Connector variants, flying leads & 90° rotatable
- Thermal protection by a KTY84.130 sensor
- Torque range from 0.64 Nm to 10.2 Nm
- Low winding voltages of 24 Vdc to 50 Vdc
- Rated speeds from 1,000 to 6,000 rpm
- Variety of flange possibilities (IEC/NEMA)



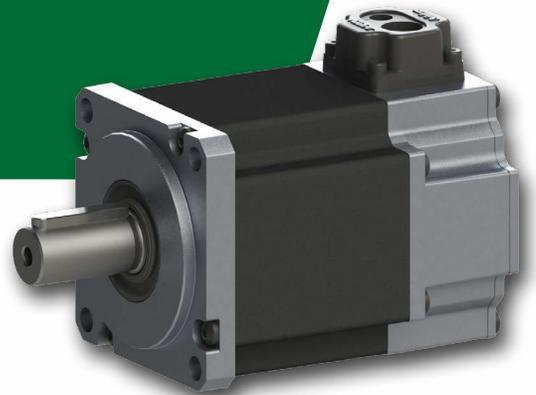
Connection type	Output shaft	Feedback device	Thermistor
		Type	
L = Flying Leads - RoboteQ SBL Drive Connections (0.5m Standard) Q = Flying Leads - RoboteQ FBL Drive Connections (0.5m Standard)	F = Key and Half-Key Supplied Separately	CT = Incremental Encoder 4096ppr	C = Standard + KTY Thermistor (KTY84)
L = Flying Leads - RoboteQ SBL Drive Connections (0.5m Standard) Q = Flying Leads - RoboteQ FBL	F = Key and Half-Key Supplied Separately	CR = Incremental Encoder 4096ppr	C = Standard + KTY Thermistor (KTY84)
L = Flying Leads - RoboteQ SBL Drive Connections (0.5m Standard) Q = Flying Leads - RoboteQ FBL	F = Key and Half-Key Supplied Separately	CR = Incremental Encoder 4096ppr	C = Standard + KTY Thermistor (KTY84)
Q = Flying Leads - RoboteQ FBL	F = Key and Half-Key Supplied Separately	CR = Incremental Encoder 4096ppr	C = Standard + KTY Thermistor (KTY84)
G = Flying Leads - RoboteQ GBL Drive Connections (0.5m Standard)	F = Key and Half-Key Supplied Separately	CR = Incremental Encoder 4096ppr	C = Standard + KTY Thermistor (KTY84)
<b>F</b>	<b>F</b>	<b>CT</b>	<b>C</b>



# Ultra Low Voltage Servo Motor Ratings – 60mm Frame

## Ratings for 3 Phase VPWM drives: 060LD (48 - 60Vrms)

Motor Frame Size (mm)	060LD
Voltage	48
Frame length	B
Continuous stall torque (Nm)	1.30
Peak torque (Nm)	4.50
Standard inertia (kg cm <sup>2</sup> )	0.33
Winding thermal time constant (sec)	55
Standard motor weight (kg)	2.0
Number of poles	10
Speed	3000
Kt (Nm/A)	0.14
Ke (V/krpm)	8.5
Rated Torque (Nm)	1.30
Stall Current (A)	10.00
Rated Power (kW)	0.40
R (ph-ph) (Ohms)	0.23
L (ph-ph) (mH)	0.70
Recommended power conn' size	Flying Leads



$\Delta t = 100^{\circ}\text{C}$  winding  $40^{\circ}\text{C}$  maximum ambient. All data subject to +/-10% tolerance. Stall torque, rated torque and power relate to maximum continuous operation tested in a  $20^{\circ}\text{C}$  ambient at 12kHz drive switching frequency. All other figures relate to a  $20^{\circ}\text{C}$  motor temperature.  
Maximum intermittent winding temperature is  $140^{\circ}\text{C}$

# Dimensions – 060 Unimotor HD

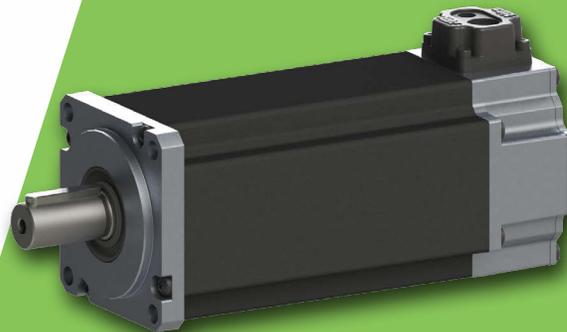
## Motor dimensions ( all measurements shown are in mm )

060	Unbraked length		Braked length		Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
	LB (± 0.9)	LC (± 1.0)	LB (± 0.9)	LC (± 1.0)	LA (± 0.5)	T (± 0.1)	N (j6)	LD (± 0.3)	P (± 0.3)	S (H14)	M (± 0.5)	PH (± 0.5)	
<b>B</b>	102.5	86.5	139.5	123.5	7.5	3.0	50.0	80.0	60.0	5.5	70.0	60.0	M5

## Shaft dimensions – 060LD Std ( all measurements shown are in mm )

Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
D (j6)	E	GA	GF	G	F (h9)	I	J (± 1)
14.0	30.0	16.0	22.0	1.5	5.0	M5 x 0.8	10.0

# 48V



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# Ultra Low Voltage Servo Motor Ratings – 67mm Frame

## Ratings for 3 Phase VPWM drives: 067LD (48 - 60Vrms)

Motor Frame Size (mm)	067LD
Voltage	48
Frame length	B
Continuous stall torque (Nm)	2.55
Peak torque (Nm)	7.65
Standard inertia (kg cm <sup>2</sup> )	0.53
Winding thermal time constant (sec)	61
Standard motor weight (kg)	2.6
Number of poles	10
Speed (rpm)	3000
Kt (Nm/A)	0.14
Ke (V/krpm)	8.5
Rated Torque (Nm)	2.45
Stall Current (A)	18.21
Rated Power (kW)	0.77
R (ph-ph) (Ohms)	0.10
L (ph-ph) (mH)	0.34
Standard Connection	Flying Leads

$\Delta t = 100^{\circ}\text{C}$  winding  $40^{\circ}\text{C}$  maximum ambient. All data subject to +/-10% tolerance. Stall torque, rated torque and power relate to maximum continuous operation tested in a  $20^{\circ}\text{C}$  ambient at 12kHz drive switching frequency. All other figures relate to a  $20^{\circ}\text{C}$  motor temperature.  
Maximum intermittent winding temperature is  $140^{\circ}\text{C}$

# Dimensions – 067 Unimotor HD

## Motor dimensions ( all measurements shown are in mm )

067	Unbraked length		Braked length		Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
	LB (± 0.9)	LC (± 1.0)	LB (± 0.9)	LC (± 1.0)	LA (± 0.5)	T (± 0.1)	N (j6)	LD (± 0.3)	P (± 0.3)	S (H14)	M (± 0.5)	PH (± 0.5)	
<b>B</b>	172.9	139.0	207.9	174.0	7.7	2.5	60.0	111.5	70.0	5.8	75.0	67.0	M5

## Shaft dimensions – 067LD Std ( all measurements shown are in mm )

Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
D (j6)	E	GA	GF	G	F (h9)	I	J (± 1)
14.0	30.0	16.0	25.0	1.5	5.0	M5 x 0.8	13.5

# 48V



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**Automation**

# Ultra Low Voltage Servo Motor Ratings – 89mm Frame

## Ratings for 3 Phase VPWM drives: 089LD (48 - 60Vrms)

Motor Frame Size (mm)	089LD
Voltage	48
Frame length	A
Continuous stall torque (Nm)	3.20
Peak torque (Nm)	9.60
Standard inertia (kg cm <sup>2</sup> )	0.87
Winding thermal time constant (sec)	85
Standard motor weight (kg)	3.18
Number of poles	10
Speed (rpm)	3000
Kt (Nm/A)	0.14
Ke (V/krpm)	8.5
Rated Torque (Nm)	3.00
Stall Current (A)	22.66
Rated Power (kW)	0.94
R (ph-ph) (Ohms)	0.07
L (ph-ph) (mH)	0.41
Standard Connection	Flying Leads

$\Delta t = 100^{\circ}\text{C}$  winding  $40^{\circ}\text{C}$  maximum ambient. All data subject to +/-10% tolerance. Stall torque, rated torque and power relate to maximum continuous operation tested in a  $20^{\circ}\text{C}$  ambient at 12kHz drive switching frequency. All other figures relate to a  $20^{\circ}\text{C}$  motor temperature.  
Maximum intermittent winding temperature is  $140^{\circ}\text{C}$

# Dimensions – 089 Unimotor HD

## Motor dimensions ( all measurements shown are in mm )

089	Unbraked length		Braked length		Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
	LB (± 0.9)	LC (± 1.0)	LB (± 0.9)	LC (± 1.0)	LA (± 0.5)	T (± 0.1)	N (j6)	LD (± 0.3)	P (± 0.3)	S (H14)	M (± 0.5)	PH (± 0.5)	
A	137.8	123.5	177.9	163.6	10.3	2.2	80.0	130.5	91.0	7.0	100.0	89.0	M6

## Shaft dimensions – 089LD Std ( all measurements shown are in mm )

Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
D (j6)	E	GA	GF	G	F (h9)	I	J (± 1)
19.0	40.0	21.5	32.0	3.7	6.0	M6 x 1.0	17.0

# 48V



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**Automation**

# Ultra Low Voltage Servo Motor Ratings – 115mm Frame

## Ratings for 3 Phase VPWM drives: 115LD (48 - 60Vrms)

Motor Frame Size (mm)	115LD
Voltage	48
Frame length	A
Continuous stall torque (Nm)	5.80
Peak torque (Nm)	17.40
Standard inertia (kg cm <sup>2</sup> )	2.40
Winding thermal time constant (sec)	161
Standard motor weight (kg)	5.13
Number of poles	10
Speed (rpm)	1000
Kt (Nm/A)	0.42
Ke (V/krpm)	25.6
Rated Torque (Nm)	5.20
Stall Current (A)	27.75
Rated Power (kW)	0.54
R (ph-ph) (Ohms)	0.07
L (ph-ph) (mH)	0.55
Standard Connection	Flying Leads

$\Delta t = 100^{\circ}\text{C}$  winding  $40^{\circ}\text{C}$  maximum ambient. All data subject to +/-10% tolerance. Stall torque, rated torque and power relate to maximum continuous operation tested in a  $20^{\circ}\text{C}$  ambient at 12kHz drive switching frequency. All other figures relate to a  $20^{\circ}\text{C}$  motor temperature.  
Maximum intermittent winding temperature is  $140^{\circ}\text{C}$

# Dimensions – 115 Unimotor HD

## Motor dimensions (all measurements shown are in mm)

115	Unbraked length		Braked length		Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
	LB ( $\pm 0.9$ )	LC ( $\pm 1.0$ )	LB ( $\pm 0.9$ )	LC ( $\pm 1.0$ )	LA ( $\pm 0.5$ )	T ( $\pm 0.1$ )	N (j6)	LD ( $\pm 0.3$ )	P ( $\pm 0.3$ )	S (H14)	M ( $\pm 0.5$ )	PH ( $\pm 0.5$ )	
A	153.8	137.0	190.9	174.1	13.2	2.7	110.0	156.5	116.0	10.0	130.0	115.0	M8

## Shaft dimensions – 115LD Std (all measurements shown are in mm)

Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
D (j6)	E	GA	GF	G	F (h9)	I	J ( $\pm 1$ )
24.0	50.0	27.0	40.0	5.3	8.0	M8 x 1.25	20.0

# 48V



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# Ultra Low Voltage Servo Motor Ratings – 142mm Frame

## Ratings for 3 Phase VPWM drives: 142LD (48 - 60Vrms)

Motor Frame Size (mm)	142LD
Voltage	48
Frame length	A
Continuous stall torque (Nm)	10.10
Peak torque (Nm)	30.30
Standard inertia (kg cm <sup>2</sup> )	5.60
Winding thermal time constant (sec)	235
Standard motor weight (kg)	7.44
Number of poles	10
Speed (rpm)	2000
Kt (Nm/A)	0.18
Ke (V/krpm)	10.9
Rated Torque (Nm)	8.6
Stall Current (A)	48.33
Rated Power (kW)	1.80
R (ph-ph) (Ohms)	0.02
L (ph-ph) (mH)	0.21
Standard Connection	Flying Leads

$\Delta t = 100^{\circ}\text{C}$  winding  $40^{\circ}\text{C}$  maximum ambient. All data subject to +/-10% tolerance. Stall torque, rated torque and power relate to maximum continuous operation tested in a  $20^{\circ}\text{C}$  ambient at 12kHz drive switching frequency. All other figures relate to a  $20^{\circ}\text{C}$  motor temperature.  
Maximum intermittent winding temperature is  $140^{\circ}\text{C}$

# Dimensions – 142 Unimotor HD

## Motor dimensions ( all measurements shown are in mm )

142	Unbraked length		Braked length		Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
	LB (± 0.9)	LC (± 1.0)	LB (± 0.9)	LC (± 1.0)	LA (± 0.5)	T (± 0.1)	N (j6)	LD (± 0.3)	P (± 0.3)	S (H14)	M (± 0.5)	PH (± 0.5)	
<b>A</b>	157.3	122.5	255.8	221.0	14.0	3.4	130.0	170.6	142.0	12.0	165.0	142.0	M10

## Shaft dimensions – 142LD Std ( all measurements shown are in mm )

Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
D (j6)	E	GA	GF	G	F (h9)	I	J (± 1)
32.0	58.0	35.0	50.0	3.0	10.0	M12 x 1.75	29.0

# 48V

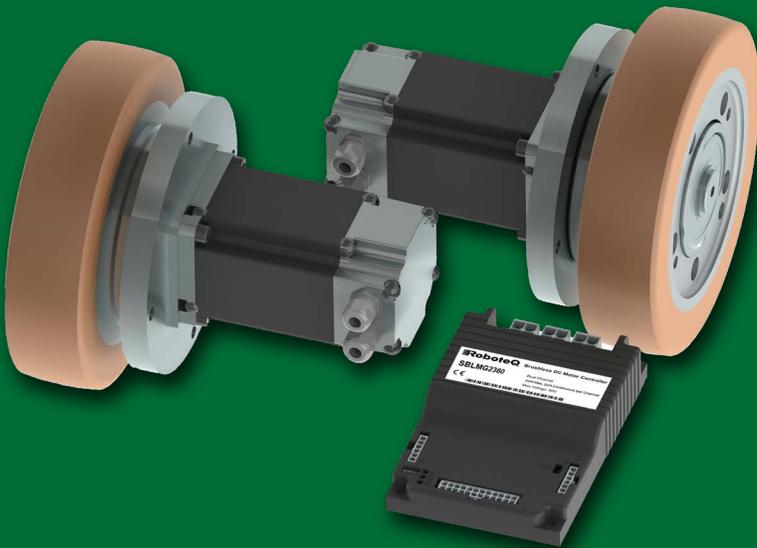


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# AGV Kits

Robot building can be faster and easier, with our Roboteq brand of integrated Motor/Gearbox/Wheels with matching, pre-configured and tuned drive. AGVs need two motors to move and steer. We can make this work with a single drive. Compared to the traditional One Motor/One Drive approach, the Dual Channel is simpler, cheaper, safer and easier to integrate and maintain. Two drives can even team up to drive four motors with Mecanum wheels to move Omnidirectional robots.



**Integrated Motor/  
Gearbox/Wheels  
with Matching,  
Pre-Configured &  
Tuned Drive**

## AGV Kits:

- 2 x AGV motors (each includes VRLZ090 gearbox & AGV wheel)
- 1 x Dual-channel drive
- 1 x Drive control cable

Our RoboteQ branded drives deliver precise speed, torque, and position control; exceptional power density, dual-channel, battery operation support, regenerative braking, fieldbus connectivity, rugged construction, Safe Torque Off function, and advanced protection.

Motor frame sizes from 60mm to 142mm and payloads up to 2000kg

Both motors are supplied fitted with industry standard AGV wheels (156.4mm diameter).

With our direct mounting designs, the need for other mechanical parts is reduced along with the setup time.

**RoboteQ**  
a **Nidec** brand

# Integrated Motor/Gearbox/Wheels & Drive

## Ideal for:



- AGVs
- Small Electric Vehicles
- Terrestrial and Underwater Robotic Vehicles
- Hazardous Material Handling Robots
- Balancing Robots



AGV Kit Description	Part Number
AGV kit including two 60mm 48V Frame Motors, 9:1 Gearbox, and Wheel Assembly for 500kg Mobile Robot up to 3000 RPM, without brake, with SBLG2360T motor controller.	AGV060B01G
AGV kit including two 60mm 48V Frame Motors, 9:1 Gearbox, and Wheel Assembly for 500kg Mobile Robot up to 3000 RPM, with brake and SBLG2360T motor controller.	AGV060B02G
AGV kit including two 89mm 48V Frame Motors, Gearbox, and Wheel Assembly for 1000kg Mobile Robot up to 3000 RPM, without Brake, with FBLG2360T motor controller.	AGV089A01G
AGV kit including two 89mm 48V Frame Motors, Gearbox, and Wheel Assembly for 1000kg Mobile Robot up to 3000 RPM, without Brake, with FBLG2360TE Ethernet motor controller.	AGV089A01G-E
AGV kit including two 89mm 48V Frame Motors, Gearbox, and Wheel Assembly for 1000kg Mobile Robot up to 3000 RPM, with Brake and FBLG2360T motor controller.	AGV089A02G
AGV kit including two 89mm 48V Frame Motors, Gearbox, and Wheel Assembly for 1000kg Mobile Robot up to 3000 RPM, with Brake and FBLG2360TE Ethernet motor controller.	AGV089A02G-E
AGV kit including two 89mm 48V Frame Motors, Gearbox, and Wheel Assembly for 1000kg Mobile Robot up to 1500 RPM, without brake, with FBLG2360T motor controller.	AGV089A03G
AGV kit including two 89mm 48V Frame Motors, Gearbox, and Wheel Assembly for 1000kg Mobile Robot up to 1500 RPM, without Brake, with FBLG2360TE Ethernet motor controller.	AGV089A03G-E
AGV kit including two 89mm 48V Frame Motors, Gearbox, and Wheel Assembly for 1000kg Mobile Robot up to 1500 RPM, with Brake and FBLG2360T motor controller.	AGV089A04G
AGV kit including two 89mm 48V Frame Motors, Gearbox, and Wheel Assembly for 1000kg Mobile Robot up to 1500 RPM, with brake and FBLG2360TE Ethernet motor controller.	AGV089A04G-E
AGV kit including two 142mm 48V Frame Motors, 9:1 Gearbox, and Wheel Assembly for 2000kg Mobile Robot up to 2000 RPM, without brake, with GBLG2660T motor controller.	AGV142A01G
AGV kit including two 142mm 48V Frame Motors, 9:1 Gearbox, and Wheel Assembly for 2000kg Mobile Robot up to 2000 RPM, with brake and GBLG2660T motor controller.	AGV142A02G

# Transaxles

Transaxles are mechanical devices which combine the electric motor, differential, axle and brake into one integrated drive solution. These types of drives are great for floorcare machines; both walk-behind and ride-on, electric vehicles of many different applications, portable machines and personal vehicles. Our transaxles are rugged, dependable and made to withstand the rigors of demanding drivetrain applications.

Transaxles									
Model	Power	Voltage	Load Capacity	Insulation Class	Max Speed	Mounting Width	Shipping Weight	Operation	Example PN
244	1/4 - 3/8 HP	24 - 36 V	900 lbs	H	160 RPM	12 - 14"	30 lbs	Bi-Directional	244135939C21.6EKDM
278	1/2 HP	24 - 36 V	1100 lbs	H	120 RPM	13 - 15"	35 lbs	Bi-Directional	278HDSP6389D18E
318	1/3 - 3/4 HP	24 - 48 V	1500 lbs	H	150 RPM	16.5"	45 lbs	Bi-Directional	3187002D15.5EKDM

- Cut steel helical gearing for smooth and efficient operation
- Oil seals on axle shafts for dirt exclusion
- Ball bearing construction
- High-grade aluminum alloy housing
- Various available wheel flanges
- Operation in both directions
- Electro/mechanical brakes
- Coupled interface between motor and transaxle for easy serviceability



244



278



318

# Wheel Motors

Our chassis drive wheel motors are compact, durable traction drives for electric powered equipment. Featuring field replaceable brake, wheel and motor, which are well suited for applications like floor care equipment, material handling, aerial work platforms, automated guided vehicles, and load movers.

Wheel Motors							
Model	Power	Voltage	Load Capacity	Max Speed	Tire Size	Weight	Example PN
200	1/2 HP	36 V	770 lbs	3.7 MPH	8"	35 lbs	200CD7190D27C-36E
250	1 HP	36 V	1000 lbs	4.0 MPH	10"	70 lbs	250CD6410D35E
300	1.5 HP	36 V	1500 lbs	4.0 MPH	12"	90 lbs	300CD6397D35E

- High traction rubber or polyurethane tire options – field replaceable
- Cast aluminum housing for corrosion resistance
- High strength, cut & hardened steel gearing
- Extreme pressure grease for maintenance-free operation
- Gearbox sealed to prevent contamination
- Totally enclosed, non-ventilated permanent magnet motor (36V / 0.5 – 1.5 HP)
- Electro-mechanical parking brake with manual release (36V)
- Speed up to 4.0 mph



200



300



250



# RoboG4™ Ultra Low Voltage Servo Drives

The RoboG4 range includes three main families of single-channel and dual-channel drives from 1500W to 19kW max. A major new addition is an integrated unit that merges Roboteq's motion control technology with Nidec's servo motor expertise. RoboG4 drives deliver world-class performance, functional safety, and exceptional connectivity to all major fieldbuses. All RoboG4 drives are compatible with each other and can scale to meet the needs of most applications.

## RoboG4 is our fourth generation family of ultra low voltage (under 60 V) servo drives



S1 series  
1x40A



F series  
2x60A  
1X120A



S2 series  
2x30A  
1X60A



G series  
2x180A  
1X360A



-  **Ultimate Precision and Control**  
Current is measured and adjusted every 62 microseconds to produce smooth and precise torque. Three cascaded loops for position, speed and current, each with its own PID and Feed-forward gains, resulting in easier tuning, and optimal performance and system responsiveness.
-  **Faster Processing**  
New, faster motion algorithms.
-  **Get More Torque & Speed**  
RoboG4 drives include automatic field weakening, allowing the motor to reach a higher speed than its maximum rating or produce additional torque at the motor's rated top speed. Important: Field weakening may enable higher speeds, but always consult the motor manufacturer to ensure safe operation within your motor's capabilities.
-  **Adapt Automatically to Load Changes**  
Adaptive control continuously observes the system's inertia and applies new gains on the fly, resulting in optimal performance.
-  **Works with Virtually any Motor**  
Wide range of supported rotor sensor types including Hall, Quadrature Encoders, Analog, Sin-Cos, Resolver, and SSI.
-  **Major Connectivity**  
Drives include traditional RS232/485/USB communication ports compatible with major Fieldbus standards. Can be tightly coupled with other drives, computers, or PLCs in factory installations and robotics systems.
-  **Scripting = Ultimate Flexibility**  
Think of it as having a PLC built right into the drive, at no extra cost. This Roboteq exclusive feature lets you tailor the drive to meet challenging requirements.
-  **Fast & Automated Setup/Tuning**  
Free PC Utility cuts development time from hours to minutes! Attach a motor and the drive automatically characterizes it, calibrates the rotor sensor, and tunes the torque and speed control loops. Monitor and troubleshoot with the powerful multichannel chart recorder.
-  **Stay Ahead of Technology**  
RoboG4 drives have the necessary circuitry and control algorithms for today's most popular motor types: Surface Permanent Magnets (SPM) or Internal Permanent Magnets (IPM) brushless motors, DC brushed motors, and AC Induction motors.

# RoboG4™ Ultra Low Voltage Servo Drives

Brushed Motor Drives Description	Part Number
Brushed DC Motor Controller, Single Channel, 1 x 40A, 60V, USB, CAN, 8 Dig/Ana IO, Cooling plate with ABS cover	SDC2160(S)
Brushed DC Motor Controller, Dual Channel, 2 x 20A, 60V, USB, CAN, 8 Dig/Ana IO, Cooling plate with ABS cover	SDC2160
Brushed DC Motor Controller, Single Channel, 1 x 120A, 60V, USB, CAN, 8 Dig/Ana IO, Cooling plate with ABS cover	MDC1460
Brushed DC Motor Controller, Dual Channel, 2 x 60A, 60V, USB, CAN, 8 Dig/Ana IO, Cooling plate with ABS cover	MDC2460
Brushed DC Motor Controller, Triple Channel, 3 x 60A, 60V, USB, CAN, 14 Dig/Ana IO, Cooling plate with ABS cover, STO PLe, Cat3, SIL3	FDC3260T
Brushed DC Motor Controller, Single Channel, 1 x 300A, 60V, USB, CAN, 19 Dig/ Ana IO, Heatsink Enclosure	HDC2460(S)
Brushed DC Motor Controller, Dual Channel, 2 x 150A, 60V, USB, CAN, 19 Dig/Ana IO, Heatsink enclosure	HDC2460
Brushed DC Motor Controller, Triple Channel, 3 x 180A, 60V, Encoder input, USB, CAN, No Ethernet	GDC3660
Brushed DC Motor Controller, Triple Channel, 3 x 180A, 60V, Encoder input, USB, CAN, Ethernet	GDC3660E
Brushed DC Motor Controller, Single Channel, 1 x 300A, 60V, USB, CAN, 16 Dig/Ana IO, Cooling plate with ABS cover	RGDC1860



# S1-Series Compact Low Power Single-Channel Drives

Brushless Motor Drives Description	Part Number
Brushless DC Motor Controller, Single Channel, 30A, 60V, USB, CAN, Trapezoidal/Sinusoidal, FOC, 8 Dig/Ana IO, Conduction Cooling plate	SBL1360A
Gen 4 Brushless DC Motor Controller, Single Channel, 1 x 60A, 60V, USB, CAN, Trapezoidal/Sinusoidal, FOC, 14 Dig/Ana IO, Conduction Cooling plate, STO PLe, Cat3, SIL3 (pending)	SBLG2360TS
Gen 4 Brushless DC Motor Controller, Dual Channel, 2 x 30A, 60V, USB, CAN, Trapezoidal/Sinusoidal, FOC, 14 Dig/Ana IO, Conduction Cooling plate, STO PLe, Cat3, SIL3 (pending)	SBLG2360T
Gen 4 Brushless DC Motor Controller, Dual Channel, 2 x 30A, 60V, USB, CAN, Trapezoidal/Sinusoidal, FOC, 14 Dig/Ana IO, Molex Connectors, Conduction Cooling plate, STO PLe, Cat3, SIL3 (pending)	SBLMG2360T
Gen 4 Brushless DC Motor Controller, Single Channel, 1 x 60A, 60V, USB, CAN, Trapezoidal/Sinusoidal, FOC, 14 Dig/Ana IO, Molex Connectors, Conduction Cooling plate, STO PLe, Cat3, SIL3 (pending)	SBLMG2360TS
Brushless DC Motor Controller, Single Channel, 1 x 120A, 60V, USB, CAN, Trapezoidal/Sinusoidal, FOC, 8 Dig/Ana IO, Cooling plate with ABS cover	MBL1660A
Brushless DC Motor Controller, IP54 dustproof water-tight, Single Channel, 1 x 120A, 60V, USB, CAN, Trapezoidal/Sinusoidal, FOC, 8 Dig/Ana IO, Cooling plate with ABS cover	KBL1660
Gen 4 Brushless DC Motor Controller, Dual Channel, 2 x 60A, 60V, USB, CAN, Trapezoidal/Sinusoidal, FOC, 14 Dig/Ana IO, Conduction Cooling plate, STO PLe, Cat3, SIL3 (Pending)	FBLG2360T
Gen 4 Brushless DC Motor Controller, Single Channel, 1 x 120A, 60V, USB, CAN, Trapezoidal/Sinusoidal, FOC, 14 Dig/Ana IO, Conduction Cooling plate, STO PLe, Cat3, SIL3 (Pending)	FBLG2360TS
Gen 4 Brushless DC Motor Controller, Dual Channel, 2 x 60A, 60V, USB, Ethernet, CAN, Trapezoidal/Sinusoidal, FOC, 14 Dig/Ana IO, Resolver/SSI, Conduction Cooling plate, STO PLe, Cat3, SIL3"	FBLG2360TE
Gen 4 Brushless DC Motor Controller, Single Channel, 2 x 60A, 60V, USB, Ethernet, CAN, Trapezoidal/Sinusoidal, FOC, 14 Dig/Ana IO, Resolver/SSI, Conduction Cooling plate, STO PLe, Cat3, SIL3"	FBLG2360TES
Gen 4 Brushless DC Motor Controller, Dual Channel, 2 x 60A, 60V, USB, Ethercat, CAN, Trapezoidal/Sinusoidal, FOC, 14 Dig/Ana IO, Resolver/SSI, Conduction Cooling plate, STO PLe, Cat3, SIL3"	FBLG2360TC
Brushless DC Motor Controller, Single Channel, 1 x 400A, 60V, USB, CAN, Trapezoidal/Sinusoidal, FOC, up to 16 Dig/Ana IO, Cooling plate with ABS cover	RGBL1860
Gen 4 Brushless DC Motor Controller, Dual Channel, 2 x 180A, 60V, Hall sensors input, Encoder input, USB, CAN, No Ethernet, STO PLe, Cat3, SIL3 (Pending)	GBLG2660T
Gen 4 Brushless DC Motor Controller, Single Channel, 1 x 360A, 60V, Hall sensors input, Encoder input, USB, CAN, no Ethernet, STO PLe, Cat3, SIL3 (Pending)	GBLG2660TS
Gen 4 Brushless DC Motor Controller, Dual Channel, 2 x 180A, 60V, Hall sensors input, Encoder input, USB, CAN, Ethernet, STO PLe, Cat3, SIL3 (Pending)	GBLG2660TE
Gen 4 Brushless DC Motor Controller, Single Channel, 1 x 360A, 60V, Hall sensors input, Encoder input, USB, CAN, TE is Ethernet.	GBLG2660TES

# Integrated Servo Motor & Drive – iHD60S

The 60S is an all-in-one compact package with IP54 60mm integrated servo motor and 4th generation drive precisely matched and fully optimized to deliver efficiency, performance and accuracy. The iHD60S is a space-saving integrated unit incorporating motor, encoder and drive for easy installation and serviceability for a multitude of robotics and industrial automation applications. Powered from any 20 to 60V DC power source to deliver up to 725W of smooth rotation, 3.46Nm peak at 2000 RPM. Multiple iHD60S's can be connected and work together.

## Integrated Servo Motor & Drive – iHD60S

- MOTOR CONTROLLER
- BRUSHLESS SERVO MOTOR
- DIGITAL SERVO DRIVE
- HIGH RESOLUTION ENCODER



Front-facing connectors option

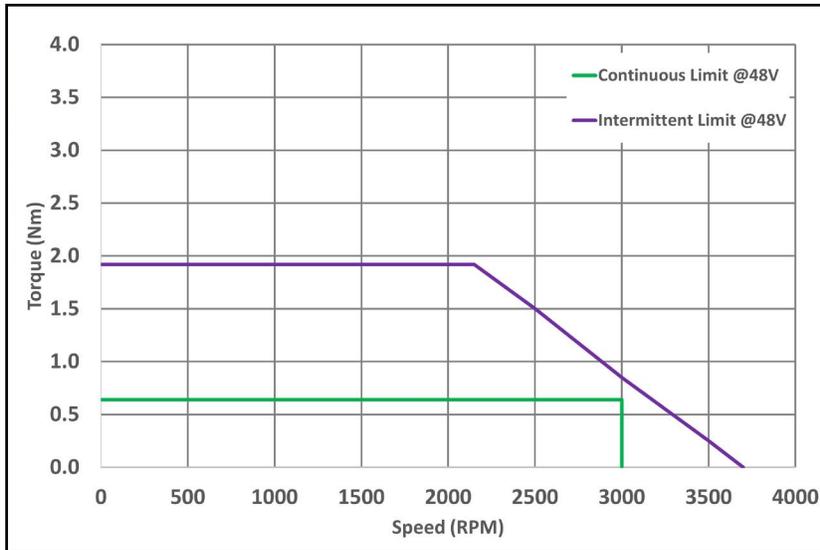
iHD60S		
Feature	Value	
Motor Type	Permanent magnet electronically commutated three-phase synchronous motor	
Feedback	Absolute SSI Encoder, 4096 counts per Revolution	
Frame	Flange-mounted 60mm	
Cooling	Convection	
IP Protection Class	IP54	
Ambient Temperature	0 to +40 deg C	
Storage Temperature	-25 to +85 deg C	
	A Length	B Length
Stall Torque	0.64 Nm	1.15 Nm
Rated Torque	0.64 Nm	1.15 Nm
Peak Torque	1.92 Nm	3.46 Nm
Rated Power	200W	360W



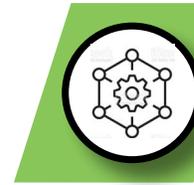
Rear-facing connectors option

# Integrated Servo Motor & Drive – iHD60S

## A-Length Speed-Torque Curve

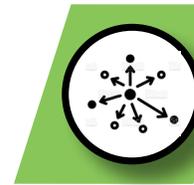
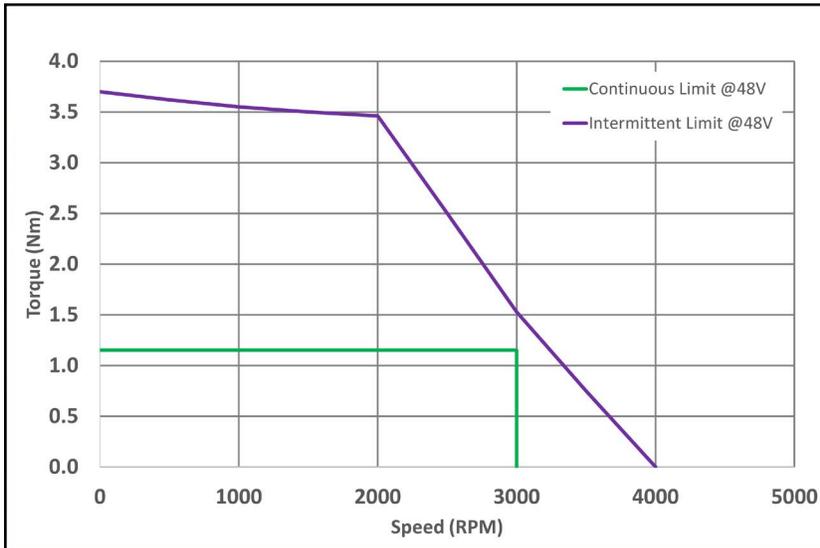


**Stand-Alone or Multi-Axis**  
Versatility for your Applications



**Fully Integrated System**  
Simple, Configuration & Analysis

## B-Length Speed-Torque Curve



**Decentralized Solution**  
Flexible Design & Reduced Machine Footprint



**No Cable between Motor & Drive**  
Simplifies & Optimizes, Costs Less

- Compact 60mm servo motor
- Available in front-facing or rear-facing connectors
- Built-in, high-efficiency three-phase 4th generation motor controller
- Low-voltage, 20-60VDC operation
- Four quadrant operation. Supports regeneration
- Available 200W (0.64Nm) and 360W (1.15Nm) continuous rating at 3000 RPM and up to 3.46Nm Peak Torque at 48V
- Smooth & quiet sinusoidal commutation with field oriented control (vector control)
- Fast 16kHz current loop control
- Absolute SSI Encoder, 4096 counts per revolution
- RS485 Serial port
- IP54 protection
- MODBUS ASCII and RTU support
- STO - Safe Torque Off support. Design complies with EN/IEC 61800-5-2 (Certification Pending)
- User programmable current limit up to 40A for protecting the drive
- Built-in Basic-like scripting language. Execution speed up to 100,000 lines per second
- Automatic tuning of torque, speed and position loops plus automatic field weakening for maximum speed & torque
- Accurate speed and odometry measurement
- Optional integrated mechanical brake with efficient PWM control

# AC Induction Parallel Shaft Gearmotors



## Blade Runner™

- Variable speed and variable output when paired with OEM variable frequency control
- High torque-to-weight ratio
- Advanced sensorless field orientated control
- Ultra-smooth, high-precision motion quality
- Ingress protection for harsh environments
- UL Class F insulation system (155°C)
- Performance in high ambient conditions (50°C)
- Over-current protection
- RoHS and REACH compliant
- Hollow shaft available for lighting and accessories
- ODE and DE mounting capabilities

**Nidec**

**Automation**

# High Volume, Low Speed (HVLS) Fan Motors

Experience the innovation of Nidec's Blade Runner® direct-drive motor series, which delivers efficient, quiet and reliable operations in a compact design, providing the torque you need without the noise, weight and maintenance associated with gear-driven motors.



Variation	Horse Power (REF)	Model Number	A, (in)	B, (in)	Shaft Type	Physical Configuration	Connection Type	Weight (lbs)	Rotor Inertia (kg*m <sup>2</sup> )
000	1 HP	M105EMC1020015H	13.42	9.82	Solid Shaft	Standard Endshield w/ Standard Bolt	Wago Connector	77.93	0.0273
001	2 HP	M105EMC1021015H	14.67	11.07	Solid Shaft	Standard Endshield w/ Standard Bolt	Wago Connector	116.02	0.0538
002	1 HP	M105DDD0000015H	13.42	9.82	Solid Shaft	Standard Endshield w/ Extended Bolt	Flying Leads	77.93	0.0273
003	2 HP	M105DDD1019015H	14.67	11.07	Solid Shaft	Standard Endshield w/ Extended Bolt	Flying Leads	116.02	0.0538
004	2 HP	M105NRT1022015H	14.22	11.07	Hollow Shaft	Dual Endshield w/ Extended Bolt	Flying Leads	116.02	0.0538

Description	1HP - 230VAC	1HP - 460VAC	2HP - 230VAC	2HP - 460VAC
$K_t$ (Nm/Arms) @ (Rated Torque/Speed) $\pm$ 10%	13.71	27.42	28.80	57.60
$K_e$ (Vrms/kRPM) $\pm$ 10%	940	1880	1880	3600
Resistance (L-L) $\pm$ 10%, (Ohms)	3.03	10.24	4.40	16.55
Inductance (mH @ 1kHz) $\pm$ 10%	89.29	314	145.88	567
Drive System Input Voltage	230VAC	460VAC	230VAC	460VAC
Rated Torque (N/m)	86	86	170	170
Rated Speed (RPM)	90	90	60	60
Motor Rated Input Current (Amps)	6	3	6	3
Motor Rated Power (kW)	0.8 kW	0.8 kW	1.2 kW	1.2 kW
Efficiency at Rated Torque/Speed $\pm$ 5%	82%	82%	80%	80%

Bearing	Dynamic Load (N)	Static Load (N)
6310 Drive-End	68,100	45,500
6207 Opposite Drive-End	25,700	15,300



# About Nidec



Nidec Automation  
Head Office  
St. Louis, Missouri USA  
[www.NidecAutomation.com](http://www.NidecAutomation.com)

## Nidec Automation

Headquartered in St. Louis, Missouri, Nidec Automation designs and manufactures innovative precision electric motors, gearmotors and drives for modern automation applications. Nidec Automation's sophisticated solutions increase the speed, reliability and safety of autonomous guided vehicles, automated storage & retrieval systems, conveyance systems, and robotics applications.

Nidec Automation also delivers geared solutions and other specialty motor and drive technologies for applications including HVLS fans, marine motors, door access & entrance systems, pellet stoves & grills, pool pumps, floor care, commercial kitchen automation equipment and wind energy. With manufacturing and engineering operations worldwide, Nidec Automation is your strategic partner for meeting the productivity demands of a busy world.



Nidec Corporate  
Head Office  
Kyoto, Japan  
[www.Nidec.com](http://www.Nidec.com)

## Nidec Corporation

With headquarters in Kyoto, Japan, Nidec is the world's leading electric motor manufacturer, with 2023 revenues of over \$18B USD and comprised of over 300 group companies and 122,000 employees. A pioneer in electrification, Nidec has worked across a wide array of industries ranging from information technology, automotive, appliance, commercial, industrial and machinery since its foundation in 1973. Nidec is a trusted development partner in multiple high-growth spaces including industrial automation, vehicle electrification and energy storage, providing world-class technology, support, and localized manufacturing to support industry leaders around the globe.

