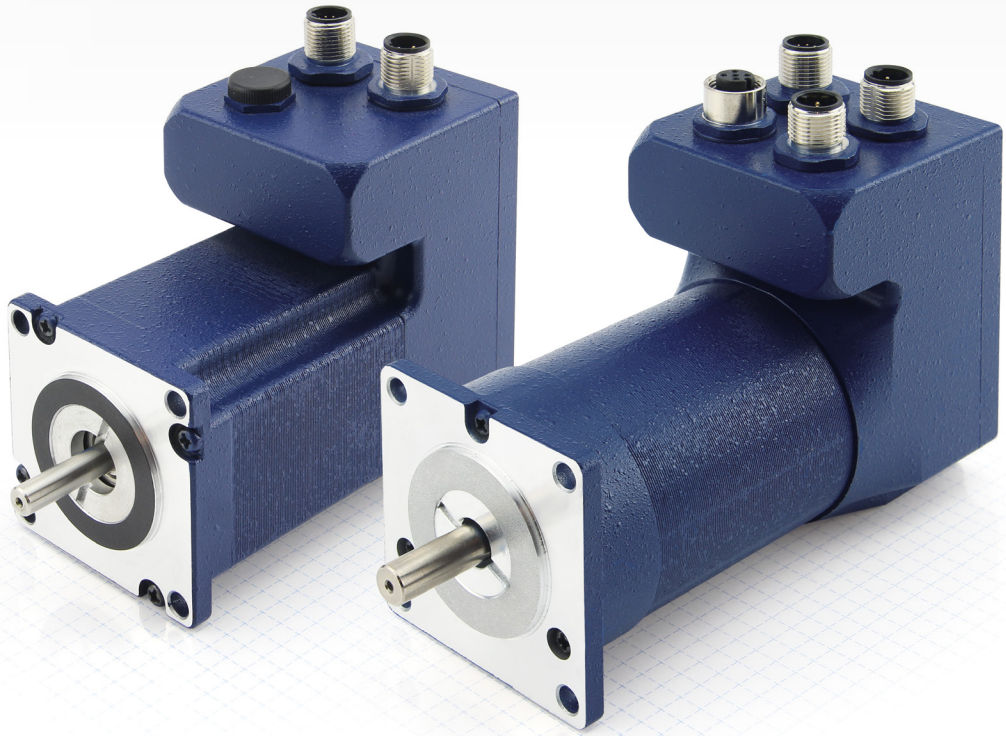
Nanotec®
PLUG & DRIVE

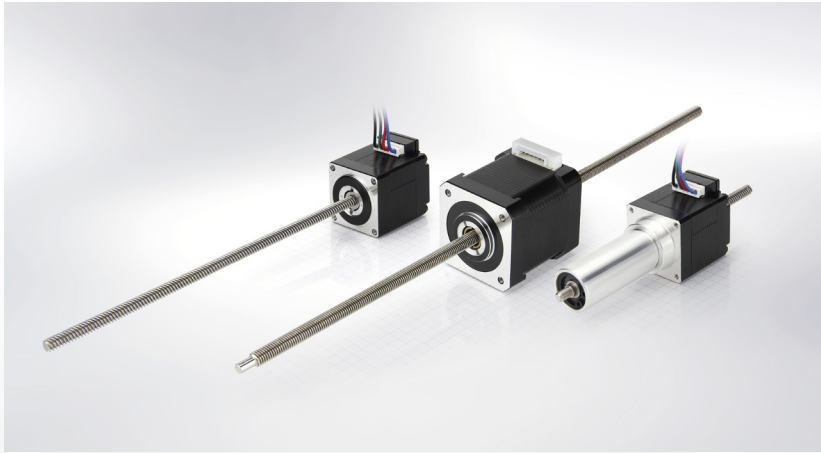
Innovations

SMART BRUSHLESS DC SERVOS

High Torque Stepper & BLDC Motors



Controllers/Drives
Servo - Micro step - Hall drive



Stepper Motor Linear Actuators
Captive - Non-captive - External

us.nanotec.com

Smart Brushless DC Servos

Integrated Stepper Motors

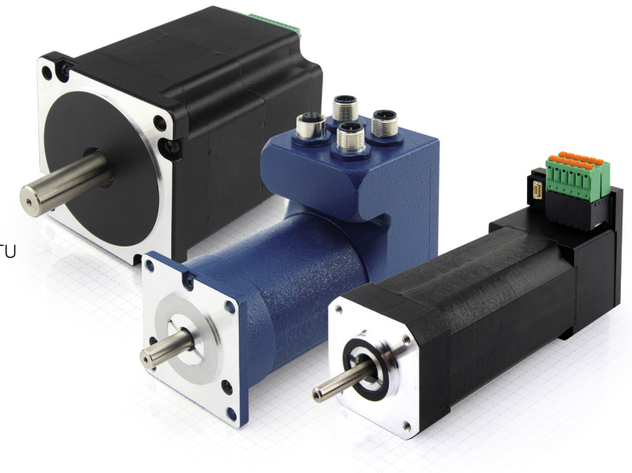
- Higher accuracy than micro stepping
- Faster acceleration
- Quieter & smoother performance
- Position, velocity and torque - control loops
- Singleturn absolute or optional 18-Bit multiturn encoder
- Optional IP65
- Optional integrated brake
- Step & direction any resolution
- High torque - up to 9Nm, NEMA 34
- CANopen, EtherCAT, EtherNet/IP, USB, Modbus TCP & RTU (RS485) – fully programmable!
- Position, velocity or torque control via analog input

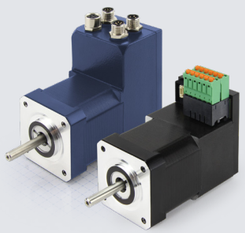
High Torque

Smart Brushless DC Servos

Integrated BLDC Motors

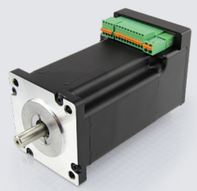
- 12 to 48Vdc
- Up to 4000RPM
- Position, velocity and torque - control loops
- Singleturn absolute or optional 18-Bit multiturn encoder
- Optional IP65
- CANopen, EtherCAT, EtherNet/IP, USB, Modbus TCP & RTU (RS485) – fully programmable!
- Step & direction any resolution
- Gearboxes available
- Position, velocity or torque control via analog input





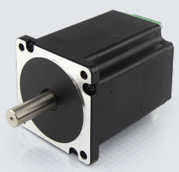
PD2-C

- NEMA 17 with 0.5Nm torque
- Optional IP65



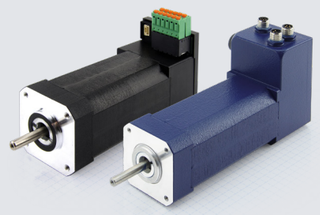
PD4-C

- NEMA 23 0.5 up to 1.9 Nm
- NEMA 24 with 3.5Nm torque



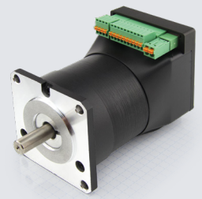
PD6-C

- NEMA 34 - 3 stack lengths
- up to 9Nm torque



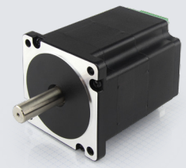
PD2-CB

- NEMA 17
- 4000RPM
- 105W, 315W peak
- Optional IP65



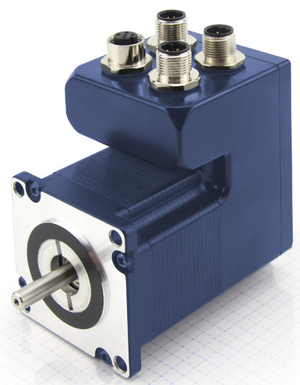
PD4-CB

- NEMA 23
- 3500RPM
- 135W, 338W peak



PD6-CB

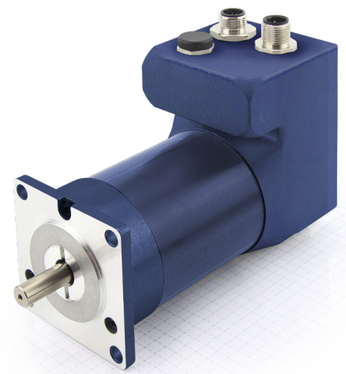
- NEMA 34 & 80mm
- 3000RPM
- Up to 534W, 1570W peak



PD4-E

- IP65 with M12 connectors
- 6 digital inputs, 2 outputs & 1 analog input
- Slow speed mode - smooth performance under 1 RPM
- Fully programmable
- NEMA 23 up to 1.9Nm torque
- NEMA 24 up to 3.5Nm torque
- 12-Bit singleturn absolute encoder or optional 18-Bit battery-free multiturn encoder

CANopen EtherCAT EtherNet/IP Modbus USB



PD4-EB

- IP65 with M12 connectors
- Up to 220W, 660W peak
- 3500 RPM
- 6 digital inputs, 2 outputs & 1 analog input
- Fully programmable
- 12-Bit singleturn absolute encoder or optional 18-Bit battery-free multiturn encoder

CANopen EtherCAT EtherNet/IP Modbus USB

Easy Programming: Plug & Drive Studio

Plug & Drive Studio is now available for quick setup and programming of Nanotec's motor controllers.

Setup is made easy thanks to several operating modes. The user can select and configure a mode using tabs. Intuitive menu navigation reduces the number of entries required by the user to just a few parameters, resulting in short setup times. At the same time, the controller can be configured via the object directory. Predefined filters can be used to display parts of the complete CiA 402 objects specific to a given task.

An integrated oscilloscope, which can be used to simultaneously display up to eight different objects with a resolution of up to one millisecond, is available for tuning the control parameters. Oscilloscope settings are predefined for standard tuning. Since all functions of the Plug & Drive Studio can be used simultaneously, the object directory and the oscilloscope can be used to examine the behavior of the controller during program execution. As a result, customer-specific functions can be programmed easily and quickly.

An integrated development environment, consisting of a source editor with automatic code completion, a compiler, and a debugger, is available for programming the controller with NanoJ. The debugger supports the setting of breakpoints in the program and allows the content of variables to be read out at these breakpoints.

For the programming of our controllers, we developed NanoJ, a C++ based programming language in which the user program runs in a so-called "sandbox", which is executed in a fixed cycle of 1ms. The settings and status values of the controller can thereby be read after every cycle. As a result, the user can not only respond to changes with just a few lines of code, but can also solve complex technical requirements. Because operation and fieldbus communication are possible simultaneously, time-critical tasks can also be processed directly in the controller.

With the latest version, the firmware can now be updated via CAN, USB, EtherCAT and Ethernet. In addition, fieldbus communication can be logged directly, simplifying troubleshooting.

Find the Right Product Immediately

Whether you're looking for a standard product or customer-specific solution, at Nanotec you'll find a drive system perfectly matched to your application. Our motors, linear actuators, gears, brakes, and encoders form a modular system with more than 100,000 possible combinations.

Our product finder at us.nanotec.com will help you to quickly and easily find the right product for your application. Simply select a product category, set the necessary technical data and a selection of all suitable products is displayed – if desired in combination with encoders, brakes or gears.

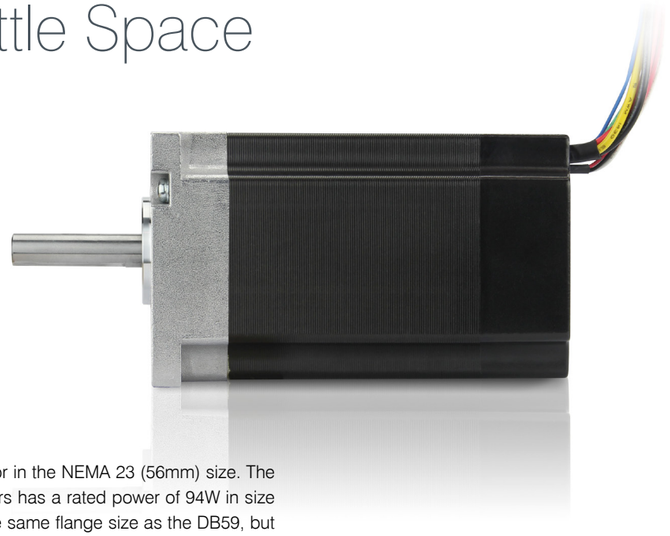
Motor Controllers/Drives

- Stepper motors – servo with encoder or micro-step quiet technology
- Brushless DC motors – servo with encoder or Hall drive
- Position, velocity and torque - PID control loops
- EtherCAT, EtherNet/IP, CANopen, USB, Modbus TCP & RTU (RS485) – fully programmable!
- Step & direction any resolution
- Position, velocity or torque control via analog input

	N5	**C5**	**C5-E**
Operating Voltage	12-72V (low current) 12-48V (high current)	12-48V	12-48V
Rated Current	10A (low current) 18A (high current)	6A	6A (low current) 10A (high current)
Peak Current	10A (low current) 40A (high current)	6A	6A (low current) 30A (high current)
Encoder Input	✓	-	✓
Brake Output	✓	-	✓
Interfaces	CANopen, EtherCAT, Ethernet/IP Modbus RTU (RS485), Modbus TCP	USB	CANopen, EtherCAT, EtherNet/IPUSB, Modbus RTU (RS485), Modbus TCP
Inputs/Outputs	6 digital inputs 2 analog inputs 2 digital outputs	3 differential inputs 3 digital inputs 1 analog input 2 digital outputs	5 digital inputs 2 analog inputs 3 digital outputs

	CL3-E	**CL4-E**	**NP5**
Operating Voltage	12-24V	12 - 58 V	12-48V
Rated Current	3A	3 A (low current) 6 A (high current)	6A
Peak Current	3A (low current) 6A (high current)	6 A (low current) 18 A (high current)	10A
Encoder Input	✓	✓	✓
Interfaces	USB, CANopen, Modbus RTU (RS485, RS232)	CANopen, Modbus RTU, USB	2x SPI, 1x12C, EtherCAT, Modbus RTU, CANopen (external circuitry required)
Inputs/Outputs	5 digital inputs 2 analog inputs 3 digital outputs	4 digital inputs 1 analog input 2 digital outputs	2 encoder inputs 7 digital inputs/outputs 2 A/D converters 1 brake output

Lots of Power, Little Space

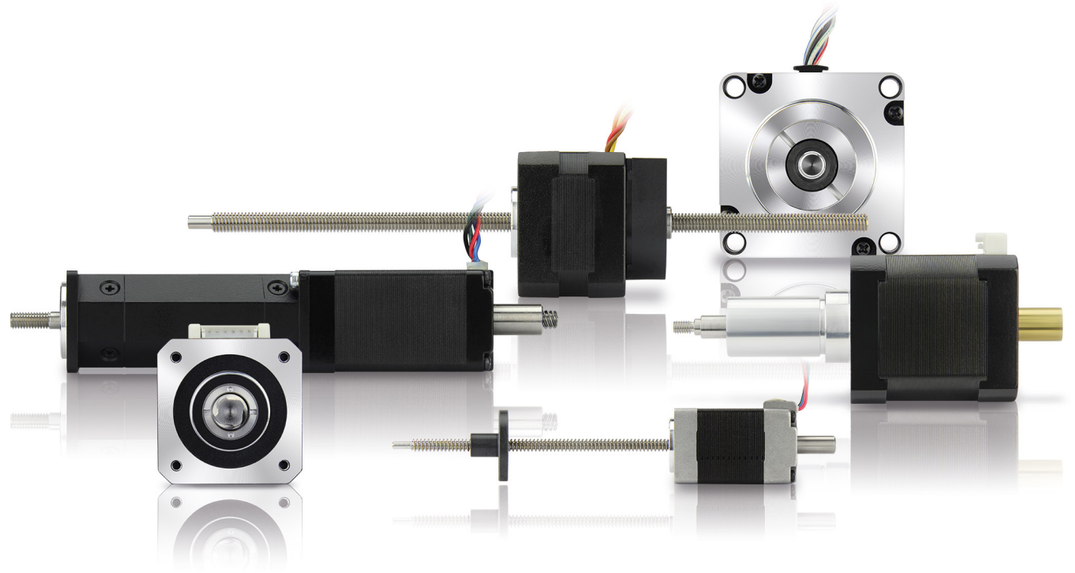


With the DB56, Nanotec offers a new brushless DC motor in the NEMA 23 (56mm) size. The eight-pole internal rotor motor with integrated Hall sensors has a rated power of 94W in size S, 141W in size M and 188W in size L. The DB56 has the same flange size as the DB59, but is equipped with bonded magnets instead of the sintered magnets of the DB59. The DB56 is a very economical solution for applications with less stringent space requirements. For applications that require an especially high power density, as well as applications with encoder and/or brake, the DB59 will be the better choice.

High-Performance Brushless DC Motors

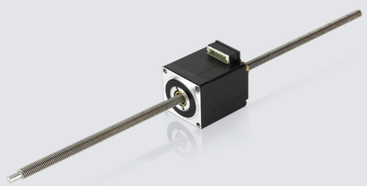
	DF32	DF45	DB41	DB43	DB80
Size	Ø 32mm	Ø 43mm	42mm/NEMA 17	42mm/NEMA 17	Flange size 80 x 80mm
Rated Voltage	24V	24V	24V	24-48V	48V
Rated Power	7.4W	30-65W	22-113W	53-138W	283-942W
Peak Torque	0.076Nm	0.15-0.39Nm	0.24-1.2Nm	0.51-1.32Nm	2.5-8.5Nm
Rated Torque	0.025Nm	0.05-0.13Nm	0.07-0.36Nm	0.17-0.44Nm	0.9-3Nm
Rated Speed	2,760rpm	4,840-5,260rpm	3,000rpm	3,000rpm	3,000rpm

New Line of Linear Actuators



The new Nanotec LA series linear actuators are available in sizes from NEMA 8 to NEMA 23 with linear slide (captive), in a standard version (non-captive) or as a positioning drive (external). They can be ordered in various lengths, with different windings and optionally with encoder.

- Center-integrated nut
- Integrated motor connector
- Anti-backlash nuts with custom preload optional
- Metric and Imperial (US) thread pitches
- Standard NEMA mounts

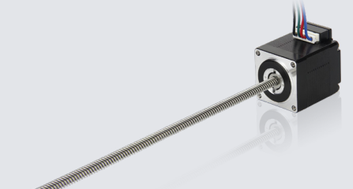


LA Non-captive

- NEMA 8 to 23
- Up to 1m stroke standard
- 46N to 1000N of thrust
- 40mm/s to 130mm/s
- Lead screw sold separately

LGA Captive

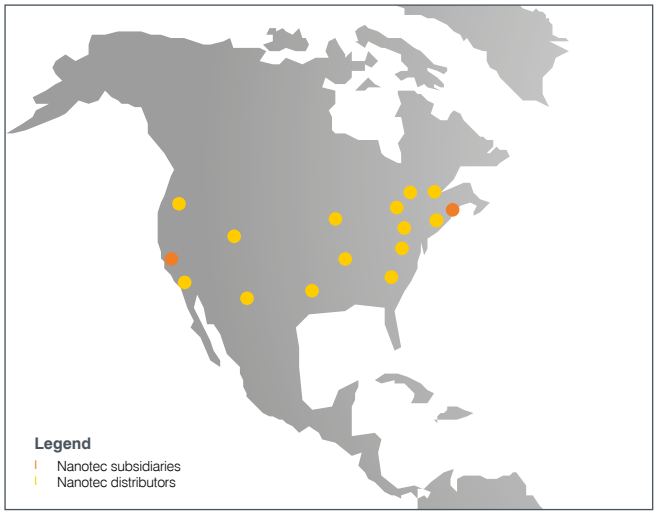
- NEMA 8 to 23
- 19 to 63mm stroke
- Captive tube design
- 46N to 1000N of thrust
- 40mm/s to 130mm/s



LSA External

- NEMA 8 to 23
- 75 to 150mm stroke
- 46N to 800N of thrust
- 40mm/s to 130mm/s
- Threaded nut sold separately

Your Sales Contact



Nanotec Electronic specializes in precise, high-performance drive solutions. We manufacture a broad range of integrated motors, brushless DC motors and stepper motors, as well as controllers and linear actuators for automation and robotic applications. Thirty years of engineering and production experience allow us to offer our customers valuable support in system design and selecting the best motion control solution for their application.

For additional information, technical assistance, and off-the-shelf delivery, please contact us at (781) 219-3343 or info@us.nanotec.com.

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