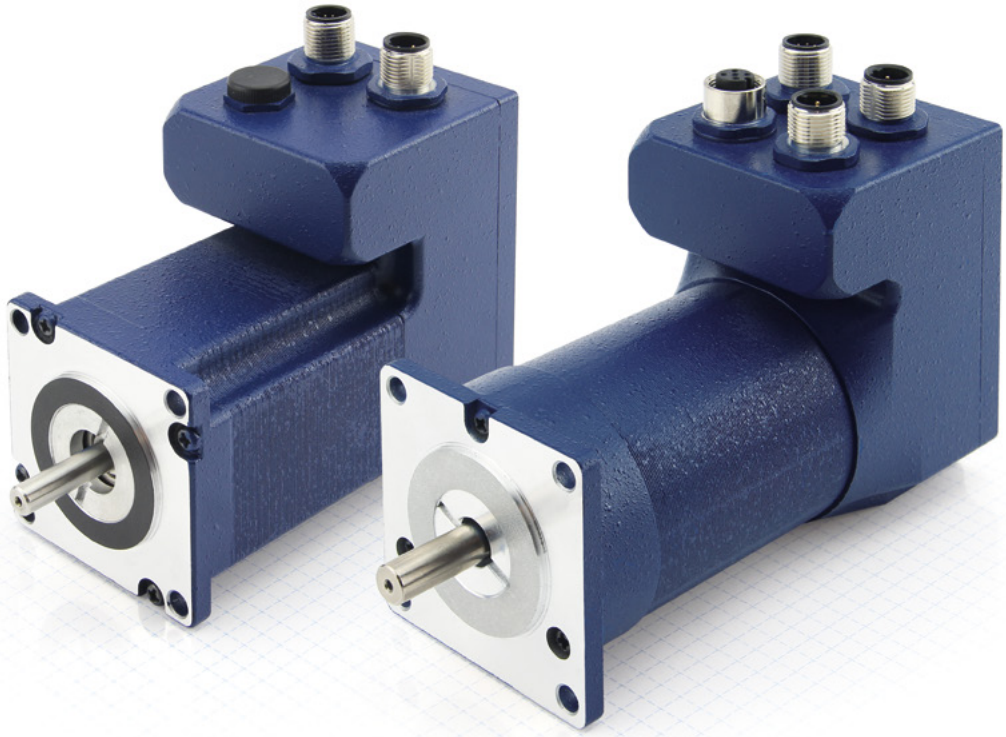
New products

Nanotec®
PLUG & DRIVE

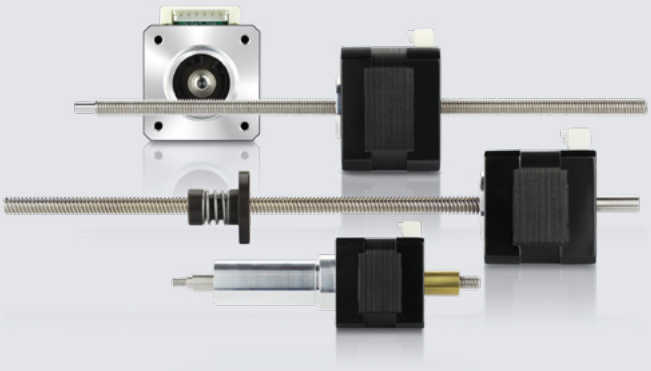
INTELLIGENT COMPACT DRIVES

Motors with integrated controller



Motor controllers

Fieldbus compatible and programmable



Stepper motor linear actuators

Captive – Non-captive – External

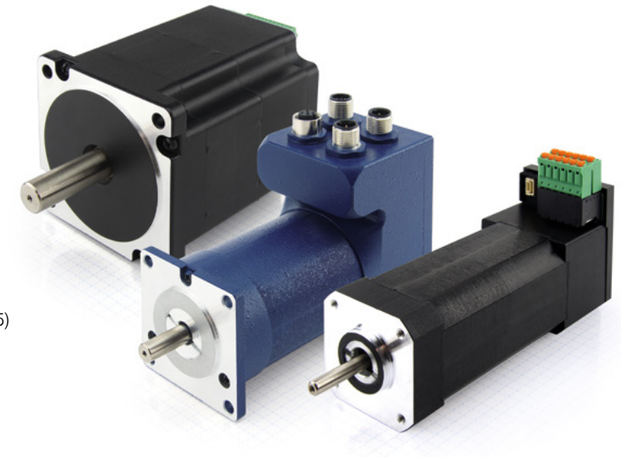
www.nanotec.com

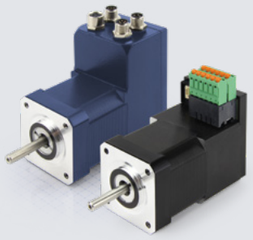
Stepper motors with controller

- Precise position, speed, and velocity control
- Quiet operation
- Magnetic singleturn absolute encoder
- Optional battery-free multiturn absolute encoder
- Also with protection class IP65
- Optional integrated holding brake
- Controlled by fieldbus, I/O, clock/direction or analog input
- High torque - up to 930 Ncm (NEMA 34)
- CANopen, EtherCAT, EtherNet/IP, Modbus TCP & RTU (RS485)
- Easy to program with the Plug & Drive Studio
- Matching gearboxes available

BLDC motors with controller

- 12 to 48 VDC
- Rated speed up to 4,000 rpm
- Precise position, speed, and velocity control
- Magnetic singleturn absolute encoder
- Optional battery-free multiturn absolute encoder
- Also with protection class IP65
- CANopen, EtherCAT, EtherNet/IP, Modbus TCP & RTU (RS485)
- Easy to program with the Plug & Drive Studio
- Controlled by fieldbus, I/O, clock/direction or analog input
- Matching gearboxes available



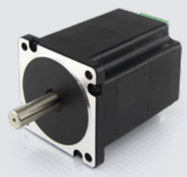


PD2-C

- NEMA 17 with 50 Ncm holding torque
- IP65 optional

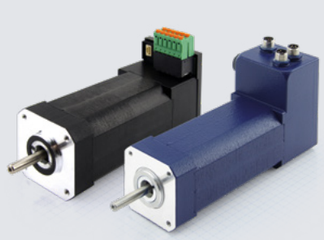
PD4-C

- NEMA 23 with 50-190 Ncm holding torque
- NEMA 24 with 350 Ncm holding torque



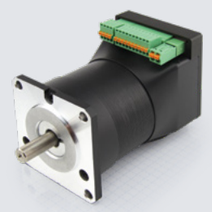
PD6-C

- NEMA 34 – 3 lengths
- Up to 930 Ncm holding torque



PD2-CB

- NEMA 17
- 4,000 rpm
- Rated power 105 W
- Peak torque up to 75 Ncm
- IP65 optional

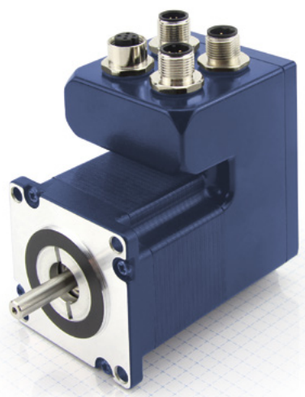


PD4-CB

- NEMA 23
- 3,500 rpm
- Rated power 135 W
- Peak torque up to 92 Ncm

PD6-CB

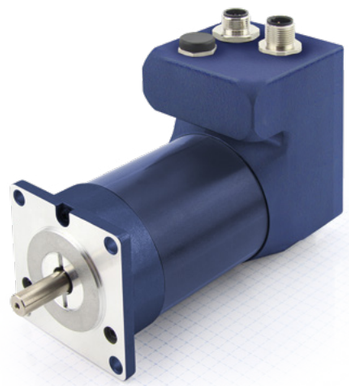
- NEMA 34 and 80 mm
- 3,000 rpm
- Rated power up to 534 Ncm
- Peak torque up to 500 Ncm



PD4-E

- IP65 with M12 connectors
- 6 digital inputs, 2 digital outputs, 1 analog input
- Slow-speed operation: extremely smooth running at speeds below 1 rpm
- NEMA 23: holding torque up to 190 Ncm
- NEMA 24: holding torque up to 350 Ncm
- Magnetic 12-bit singleturn absolute encoder
- Battery-free 18-bit multiturn absolute encoder optional

CANopen EtherCAT EtherNet/IP Modbus

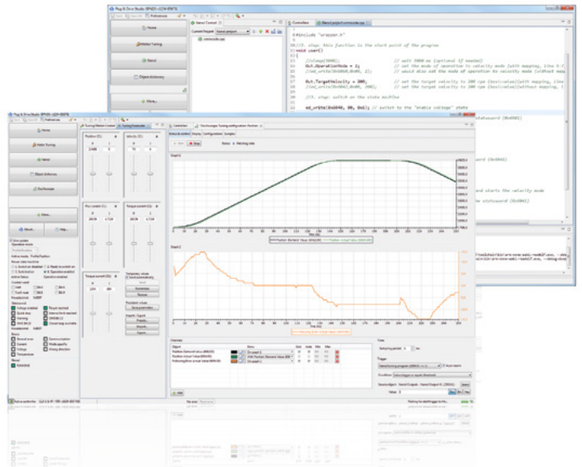


PD4-EB

- IP65 with M12 connectors
- Rated power up to 220 Ncm
- Peak torque up to 180 Ncm
- 3,500 rpm
- 6 digital inputs, 2 digital outputs, 1 analog input
- Fully programmable
- Magnetic 12-bit singleturn absolute encoder
- Battery-free 18-bit multiturn absolute encoder optional

CANopen EtherCAT EtherNet/IP Modbus

Simple programming: Plug & Drive Studio



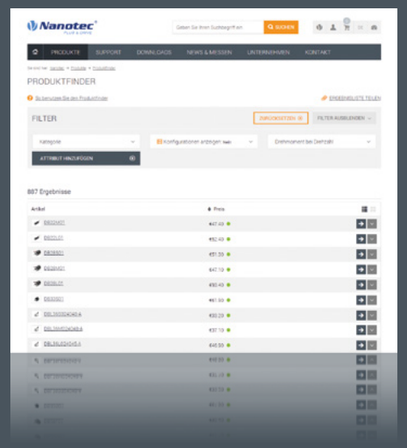
For the commissioning and programming of its motor controllers, Nanotec offers the Plug & Drive Studio. The software supports the commissioning process through a number of prepared operating modes. The user can select and configure a mode using tabs. Intuitive menu navigation reduces the number of entries required by the user to just a few parameters, resulting in short commissioning times. Classic configuration of the controller via the object directory is likewise possible in parallel. Predefined filters can be used to display parts of the complete CiA 402 objects specific to a given task.

For the programming of our controllers, we developed NanoJ V2, a C++ based programming language in which the user program runs in a so-called “sandbox”, which is executed in a fixed cycle of 1 ms. The settings and state values of the controller can thereby be read after every cycle. As a result, the user can not only respond to changes with a just few lines of code, but can also solve complex technical requirements. Because operation is possible in parallel with fieldbus communication, time-critical tasks can also be processed directly in the controller.

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. Because all functions of the Plug & Drive Studio can be used simultaneously, the object dictionary and the oscilloscope can be used to understand the behavior of the controller during program execution. As a result, customized functions can be programmed easily and quickly.

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

The firmware can be updated via CAN, USB and Ethernet. In addition, fieldbus communication can be logged directly, simplifying trouble-shooting.



Find the right product

Whether a standard product or custom solution, at Nanotec you’ll find a drive system perfectly matched to your application. Our motors, controllers, linear actuators, gearboxes, brakes and encoders form a modular system with more than 100,000 possible combinations.

The Product Finder at www.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 gearboxes.

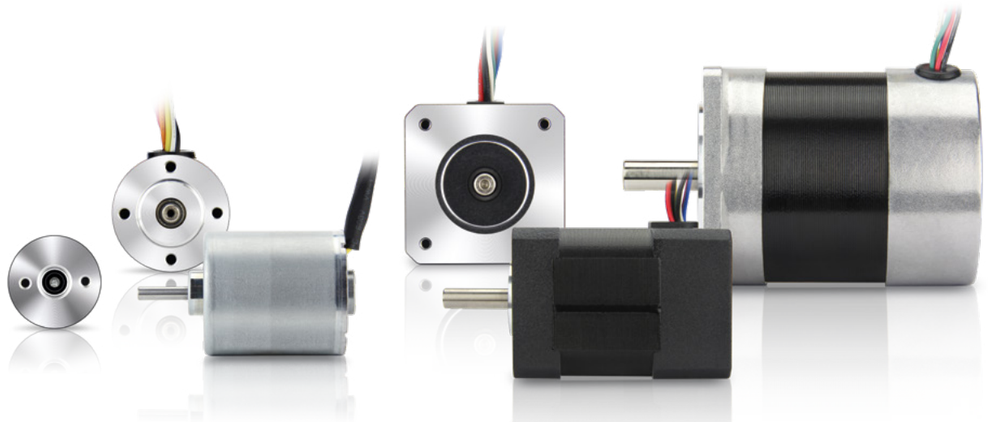
Motor controllers

- For brushless DC and stepper motors
- Field-oriented control with encoder, Hall sensors or sensorless
- Precise position, speed, and velocity control
- EtherCAT, EtherNet/IP, CANopen, Modbus TCP & RTU (RS485)
- Simple configuration and programming with NanoJ V2
- Controlled by fieldbus, clock/direction or analog input

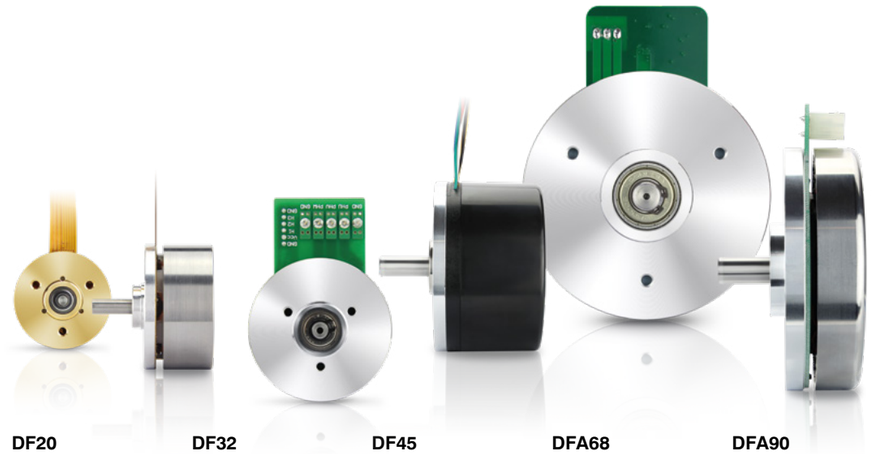
	N5	C5	C5-E
Operating voltage	12-72 V (low current) 12-48 V (high current)	12-48 V	12-48 V
Rated current	10 A (low current) 18 A (high current)	6 A	6 A (low current) 10 A (high current)
Peak current	10 A (low current) 40 A (high current)	6 A	6 A (low current) 30 A (high current)
Interfaces	CANopen, EtherCAT, Ethernet/IP, Modbus RTU (RS485), Modbus TCP	USB	CANopen, EtherCAT, EtherNet/IP, USB, Modbus RTU (RS485), Modbus TCP
Inputs/outputs	6 digital inputs 2 analog inputs 2 digital outputs 1 encoder input 1 brake output	3 differential inputs 3 digital inputs 1 analog input 2 digital outputs	5 digital inputs 2 analog inputs 3 digital outputs 1 encoder input 1 brake output

	CL3-E	CL4-E	CM-CPB3-44 (4 axes)
Operating voltage	12-24 V	12-58 V	12-58 V
Rated current	3 A	3 A (low current) 6 A (high current)	3 A
Peak current	3 A (low current) 6 A (high current)	6 A (low current) 18 A (high current)	3 A (low current) 9 A (high current)
Interfaces	USB, CANopen, Modbus RTU (RS485, RS232)	USB, CANopen, Modbus RTU (RS485)	EtherCAT, USB
Inputs/outputs	5 digital inputs 2 analog inputs 3 digital outputs 1 encoder input	4 digital inputs 1 analog input 2 digital outputs 1 encoder input	4 digital inputs (per axis) 2 digital outputs (per axis) 1 analog input (per axis) 1 brake output (per axis) 2 encoder inputs (per axis)

Brushless DC motors



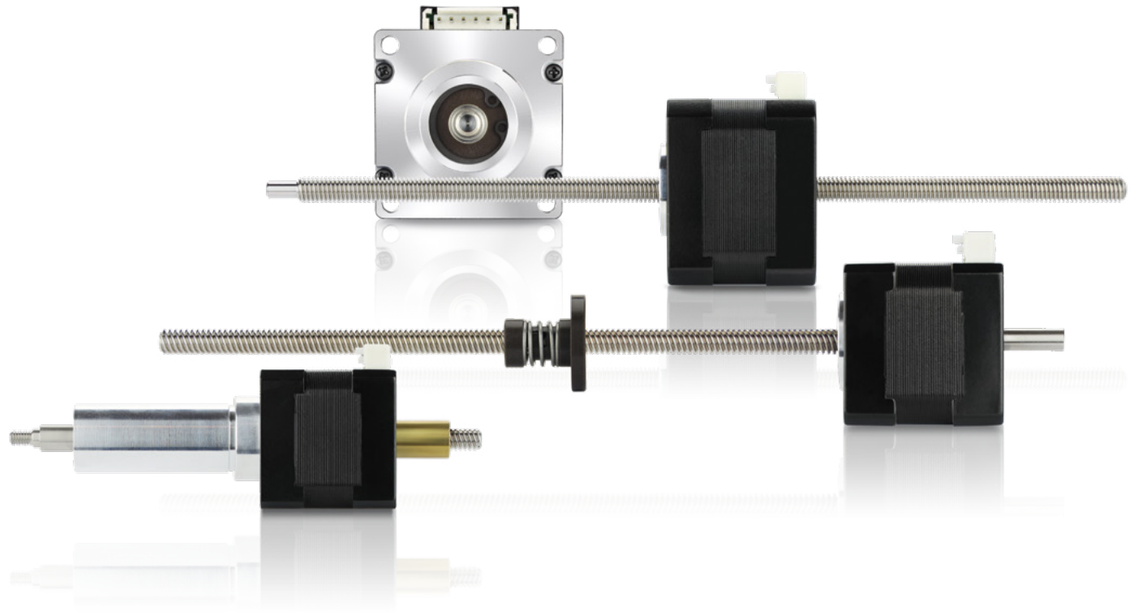
Internal rotor motor	DB22	DB28	DBL36	DB43	DB59	DB80
Size	Ø 22 mm	Ø 28 mm	Ø 36 mm	42 mm	56 mm	80 mm
Rated voltage	24 V	15-24 V	24 V	24-48 V	24-48 V	48 V
Rated power	4-7.7 W	15-24 W	7.5-33 W	53 - 138 W	84-220 W	283 - 942 W
Peak torque	2.4-5 Ncm	1.5-15 Ncm	4.5-21 Ncm	51-132 Ncm	69-180 Ncm	250-850 Ncm
Rated torque	0.8-2.2 Ncm	0.5-5 Ncm	1.5-7 Ncm	17-44 Ncm	23-60 Ncm	90-300 Ncm
Rated speed	3,500-4,800 rpm	4,000-10,000 rpm	4,500-4,800 rpm	3,000 rpm	3,500 rpm	3,000 rpm



External rotor motor	DF20	DF32	DF45	DFA68	DFA90
Size	Ø 20 mm	Ø 32 mm	Ø 45 mm	Ø 68 mm	Ø 90 mm
Rated voltage	12 V	24 V	24 V	24 V	24-48 V
Rated power	5 W	7.4 W	30 - 65 W	106-110 W	130-170 W
Peak torque	1.9 Ncm	7.65 Ncm	15-39 Ncm	87 Ncm	150-300 Ncm
Rated torque	0.76 Ncm	2.55 Ncm	5-13 Ncm	29 Ncm	45.7-96.4 Ncm
Rated speed	5,170 rpm	2,760 rpm	4,840-5,260 rpm	3,500-3,700 rpm	1,670-2,720 rpm

DFA68 and DFA90 also come standard with an integrated inductive 3-channel encoder with a resolution of 4,096 CPR.

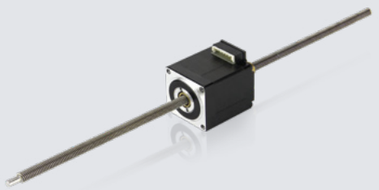
Linear actuators



Nanotec's product range includes stepper-motor linear actuators in three versions and five sizes. Thanks to their special stator geometry and optimized magnetic materials, Nanotec actuators generate significantly more force than comparable drives. This range is complemented by lead screws with a large selection of leads, diameters and lengths – in standard as well as customized versions.

For applications with extremely high demands in terms of service life, all lead screws are also optionally available with DLC coating. The protective coating made of carbon material improves the friction characteristics and thereby increases the service life of the nuts by approx. 100%.

- Force up to 1,000 N
- Max. speed up to 190 mm/s
- Standard thread leads of 0.4 to 10.16 mm
- Different types of nuts



LA – non-captive

- NEMA 8 to 23
- Stroke length up to 1 m
- Force 33.7-1,000 N
- Speed 13-150 mm/s
- Lead screw sold separately

LGA – captive

- NEMA 8 to 23
- Stroke length 12.7-63.5 mm
- Force 33.7-1,000 N
- Speed 13-150 mm/s

LSA – external

- NEMA 8 to 23
- Stroke length 75-150 mm
- Force 33.7-1,000 N
- Speed 13-150 mm/s
- Nut sold separately

About us

Whether standard or custom solutions, we offer tailor-made drive systems for applications that require maximum precision, reliability, and functionality. Since 1991, we have been developing a broad range of products that are primarily used in automation systems, laboratory equipment, medical engineering, the packaging industry, and semiconductor production.

Our milestone was the development of the first motor with integrated controller, which played an important role in the company's growth. Today, Nanotec continues to focus heavily on research and development and has been ranked one of the top innovators in Germany in 2021.

With our own production facilities in Feldkirchen and ChangZhou/China, the R&D departments in Germany and Varna/Bulgaria and our sales office in Stoneham, MA/USA, we provide and support customers all over the world with our expertise and customized solutions.

Nanotec® PLUG & DRIVE

Nanotec Electronic GmbH & Co. KG
Kapellenstraße 6, 85622 Feldkirchen, Germany
T +49 (0)89 900 686-0
F +49 (0)89 900 686-50
info@nanotec.de
www.nanotec.com