NIKKI DENSO
Lineup Catalog

- DISC Servo Motor D Series
- DISC Servo Motor HD Series
- DISC Servo Motor NDI/ND-c Series
- Linear Servo Motor
- Servo Compass
- ID Roll Servo Motor ID Series
- Linear Stage
- AC Servo Motor NA Series
- AC Servo Driver/Controller VCS Series
- AC Servo Driver VPS Series
Developing Industrial Drive Systems of the New Era.

Since its foundation and through years of manufacturing DC servo systems, Nikki Denso has been devoted to the development of unique technologies with the aim of creating motors that work just the way human operators want. Committed to this field of technology, we specialize in drive control systems for industrial equipment and devices, which form the basis of the manufacturing industry that is the mainstay of the industrial economy. By providing more accurate, faster, and more stable drive control systems, we intend to help boost the productivity of all industrial equipment and devices, thus contributing to the industrial growth.

Technology does not exist just for itself; it exists so as to increase the value of all the equipment and devices to which it is applied. We not only develop technologies but also create customers who use these technologies as well as the value of the equipment and devices that the technologies generate. Tackling emerging challenges one by one, for customers, we will continue our tireless efforts to pursue the next generation of motor control technology, ever becoming compliant about the current situation.

In 2010, we announced the "T (Taro) Engine," our new trademark, and unveiled our policy of developing industrial motors and equipment drive systems of the coming era that meet the global environmental issues. Under this "T (Taro) Engine" development policy, we intend to contribute extensively to the industrial community.

1987 March
- Establishment of R&D and Sales Division, Tokyo, with a capital of ¥370 million for purposes of designing, specifying, and developing and manufacturing electric control systems.

1989 March
- Establishment of Nikki Denso Plant, Tottori, for purposes of manufacturing DC servo control systems.

1990 April
- Nikki Denso Plant constructed in 2-26-8, Amago, Tottori Prefecture, where electronic components for DC motors are manufactured.

1993 April
- Nikki Denso Plant constructed in 2-26-8, Amago, Tottori Prefecture.

1995 April
- Development of DC servo drives with a maximum control capacity of 2,400W.

1996 September
- Establishment of the Nikki Denso plant, Tottori.

1997 May
- Establishment of the Nikki Denso plant, Tottori.

1998 January
- Development of DC servo drives with a maximum control capacity of 2,400W.

1999 September
- Establishment of the Nikki Denso plant, Tottori.

2000 May
- Establishment of the Nikki Denso plant, Tottori.

2001 April
- Development of DC servo drives with a maximum control capacity of 2,400W.

2002 December
- Development of DC servo drives with a maximum control capacity of 2,400W.

2003 December
- Development of DC servo drives with a maximum control capacity of 2,400W.

2004 April
- Development of DC servo drives with a maximum control capacity of 2,400W.

2005 September
- Establishment of the Nikki Denso plant, Tottori.

2006 April
- Establishment of the Nikki Denso plant, Tottori.

2007 December
- Establishment of the Nikki Denso plant, Tottori.

2008 April
- Establishment of the Nikki Denso plant, Tottori.

2009 September
- Establishment of the Nikki Denso plant, Tottori.

2010 April
- Establishment of the Nikki Denso plant, Tottori.
High-end models developed in pursuit of super performance: stability at constant speed, positioning accuracy, and machine accuracy

The D series offers a rich line of products, such as the low-profile and fast response type and large capacity type, which can be selected according to use and purpose. All these motors feature fast response times, support stroboscopic operation patterns requiring reliable positioning, and enable stable operation at constant low speed, among other things, bringing the best direct drive performance that can be achieved by no commercial offering other than the D series. The motors are used widely in various industries where nano-meter level accuracy is demanded. The D series products are the flagship models of the τ DISC direct drive servo motors, and we intend to continue to enhance their specifications in order to achieve even greater performance.

Low-Profile and High Performance
Low-profile structure based on a new concept

τ DISC servo motor D series - Low-profile and high performance type
The high magnetic flux density makes these motors overwhelmingly thin: 44.1 mm. They enable smooth rotation motion from low speed with no cogging. With machine accuracy maintained in all aspects including backlash, these motors are also very suitable for high accuracy use.

Large Capacity
Driving a large object with high accuracy and at high speed with a maximum torque of 5800 N·m

τ DISC servo motor D series - Large capacity type
These are large capacity direct drive servo motors. Their maximum torque ranges from 1000 N·m to 5800 N·m. Type-220 and Type-255 achieve wide mechanical coupling areas, which is impossible with other products currently on the market. In order to satisfy the need for highly accurate and high-speed driving, we have designed the motors to enable high-speed rotation of 60 rpm or more at an ultra high resolution of approximately 10.4 l/min, which combined with the interpolator developed by us. Also, when used in combination with the VC series that features an excellent servo box, the motors support large capacity, high-speed rotation, and static holding.

High-end models developed with fast response in mind
A high-level balance between high torque and low inertia structures, coupled with high motor rigidity, give these motors fast response performance with excellent stability.

Fast Response
Possibilities beyond "super fast response"

τ DISC servo motor HD series - Fast response type
Developed in pursuit of high accuracy and high tact operation, this fast response type of motor enables high-speed rotation of 360 rpm at a high resolution of up to 15,242 million pulses. High motor rigidity and low inertia structure enable super fast response. Four series are available from Type-142 to Type-295. When used with a servo control unit of the VC series, the motor fully exhibits its potential.

New standard models equipped with an absolute encoder
The ND series and ND c series are the new standard models developed on the basis of the technology that we have gained for the D series. The lineup consists of 22 standard models, from ND Type-110 to ND Type-400, which can be applied for various uses.

Standard
Easy to use for various purposes including conveyance and index positioning

τ DISC servo motor ND/ND c series
In addition to the existing τ DISC standard models of the HD series, we now offer low-cost models of the ND c series. With both the incremental encoder type and absolute encoder type available, these models are easy to use and best suited for conveyance and indexing. As the τ DISC diffusion type models, they can be employed in many different situations where the use of direct drive servo motors is considered.
τ Linear Servo Motor

The τ Linear servo motor comes in two varieties: the coreless model that excels in response performance and the core type that allows high-speed positioning for a large mass load. The NWA, NLA, and NLD series all make it possible to maximize the machine performance. Also available is the τ servo compass, which enables circular operation as appropriate for the required angle. From these diverse models, an optimal motor can be chosen according to purpose and use.

τ iD Roll Servo Motor

The high-torque direct drive of the τ iD roll enables stability at constant speed, high-tak operation, and high accuracy, among other things, delivering the driving power that can never be achieved with a deceleration mechanism.

High Accuracy and High-Speed Operation

There are a variety of τ Linear servo motors to choose from. Coreless types supporting a range of 7 to 1000 N and core types supporting a range of 250 to 1500 N.

τ Linear Servo Motor

Several coreless types are available, including the flat type with a sliding structure that can be held at both ends, the high-thrust type that, as a result of redesigning the magnetic alignment, produces high thrust in 70% of the space previously required, and the standard high-thrust type that can support up to 1000 N. When used in combination with the interpolation developed by us, the motors achieve high speeds of up to 1.5 m/s based on a high resolution of 20 nanometers. They offer high accuracy and high-speed operation – high-performance drive that is impossible to realize with ordinary motors.

Unique Performance

Direct circumference drive brings mechanical simplicity

τ Servo Compass

This is the τ Linear servo compass of the circular operation type based on a new concept. It is best suited for alignment operation at a small angle and high-accuracy positioning within a limited operation area. The compass does not have a rotation axis and drives the work table on the circumference, which makes it immune to the lead point. In addition, since an encoder sensor can be integrated on the circumference, the product enables high-accuracy positioning. When used as a single unit, the compass can operate within a range of ±3°. A sensor-combined type has also been added to the lineup, making it easier to mount magnetic axes. Creative ideas lead to simpler mechanisms and higher machine rigidity.

High Torque

High-torque direct drive power

Rated torque: 550 N-m to 10000 N-m

τ ID roll ID Series

This is the ID series of direct drive motors developed for general industrial equipment in pursuit of high torque, high-bake operation, and high accuracy. These motors improve the machine performance by directly driving the drive system, which conventional motors drive via a deceleration mechanism. They also employ the water cooling system, which makes them more compact, less noisy, and friendlier to the environment. The motors come in two types: shaft type and hollow type. They use the protection structure of IP55 (except for the rotating portion), making them direct drive motors suitable for general industrial equipment.
Importance of Servo Drive

The VCS II series, the flagship model on which we put our expertise to create an AC series of products that boast the collection of our technological expertise.

Versatility

A flagship model on which we put our expertise to create an AC series of products that boast the collection of our technological expertise.

AC servo motor NA series

Both synchronous type and induction type AC servo motors are provided to meet the diverse needs of customers. The synchronous type AC servo motors N/A80/100 series feature a compact design. Also available are the induction type AC servo motors NA/100/20 series, which offer a robust structure and high reliability without using any permanent magnets. There is a variety of models to choose from, including the ones equipped with gears or brakes.

Synchronous Type and Induction Type Servo Motors

A wide variation of motors operating at 50 W to 55 kW

High-Speed Conveyance

Long stroke + scaleless linear stage

Long stroke linear stage

This linear stage consists of two or more base stages concatenated to allow a stroke of up to 20 meters. Supporting a maximum speed of 15 meters/second, this model is best suited for high-speed conveyance. Also, the use of a scaleless linear encoder that requires no linear scale makes the product even more cost-effective.

Fusion

Stage accuracy + Servo control technology + High-performance = Linear Stage

Linear Stage

The fusion with the servo control technology we have amassed over the years has led to the creation of high-performance control systems. We offer outstanding stage performance that only excellent servo manufacturers provide, including positioning accuracy guaranteed using an absolute position compensation function, speed stability, guaranteed speed fluctuation measurement data, gain adjustment, and testing of high-tail operation by setting a recirculation filter.

In addition to the X/Y/Z stage, the fusion includes the X-Z and Y-Z axes stages that use the high-accuracy direct drive model as the 0-axis. Multi-head and other custom-made models are available.

Multifunction

VPS series offering a high-level balance between functionality and performance

AC servo driver VPS series

While developed as drivers, the products of the VPS series feature seven-point positioning and zero point return functions. Feed forward torque control substantially reduces the position error during the operation, while resulting in remarkable improvements in synchronization and tracking performance. Equipped with the resonance suppression filter and other useful functions, the drivers can improve the load capacity of an actuator to a level that has never been possible before. The VPS series drivers have many other user-friendly functions in order to increase the ease of use. As multifunctional drivers, they are widely used in various situations.

Linear Stage

This is a suite of high-performance linear stages equipped with linear servo motors. A variety of stages, including the high accuracy X/Y/Z stage and long stroke stage, are offered to meet diverse needs.