

Select most suitable product for easy operation.

GTR
GEAR MOTOR
Since 1974
Power Transmission

GTR-AR
Accurate Reducer
GTReco
High Efficiency Ipm Gear Motor

Nissei's 7 Guarantees

Selection

1 More than 170,000 Standard Models

- We can supply the model you desire as a standard product.
- We have a standard lineup of environment-resistant products, including waterproof (IP65) and explosion-proof motors.

choice

Compatibility

More than 90% Produced In-house

- Gear production, heat treatment, die-casting and coating performed at our facilities.
- We can support custom orders with even reducers made to order.

Control

Consistency

Same mounting dimensions as when we started selling GTR (since 1974)

- Even with increased functionality and properties the footprint is the same.
- The mounting dimensions remain the same, from induction motors to servomotors.

Reliable

On Time

Have your order in as few as 3 days.

- Standard products delivered in a short period of time.

Quality You Can Trust

Made in Japan

- Quality carefully controlled by a high proportion of in-house production.
- We hold ISO9001 and ISO14001 certification.

Environmentally Friendly

Making Environmentally Friendly Products

- Our active environmental strategy includes measures for RoHS and reducing energy and materials.
- We also work to incorporate fuel cells and other cutting-edge technology.

Consultation

- Get advice any time on our easy-to-use website.

Advice

Choose the product that suits your usage. Nissei Corporation

Nissei is a manufacturer of powered electric motors that consist of gears and gearmotors. We have numerous standard product models, and our customers can choose a suitable product based on its applicability. Nissei consistently strives to provide products that are easy for customers to use.

**Nissei prioritizes
customer satisfaction for
each and
every product.**

Gearmotors

560,000 units produced per year

**We carry a variety of product models.
Please choose a suitable gearmotor.**

- Reducers for DC gearmotors, brushless DC motors, and servomotors
- We offer various mounting types (parallel shaft, right angle shaft, hollow/solid shaft).
- Our wide ratio range (1/5 to 1/1,800) makes it easier to choose.
- Over 90% of our products are manufactured in-house. From homogeneous design and manufacture to casting, machining and assembly, we have achieved a unified production process.
- We have adopted a product inventory system that lets us provide faster delivery any time for any model.



Gears

18 million units produced per year (cylindrical gears: $m = 0.5-6$; bevel gears: $m = 0.5-6$)

**For half a century, we have been designing and manufacturing gears,
and developing new products that meet the needs of the market.**

Machine tools



Hypoid gears



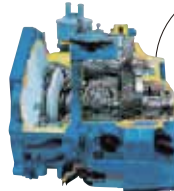
HRH (high ratio hypoid) gears

Robot



Spur Gear

Transmissions



Helical gears

Electric tools



Internal gears

Equipment



KASHIFUJI Gear
Cutting Machine KN-150



Bevel gear machine tool #102



Bevel Gear Cutting Machine



Nissei CBN Bevel Gear Grinder

Nissei's History



Corporate Profile

Company Name: Nissei Corporation

Capital: 3,475 Million Yen

Employees: 888

Headquarters: Anjo-shi, Aichi

Manufacturing Plant:

Main Plant, Anjo Minami Manufacturing Plant

Stock Exchange:

Listed on the Second Section of the Tokyo Stock Exchange

Listed on the Second Section of the Nagoya Stock Exchange

Main Products:

Reducers, Variable-Speed Reducers, Direct Drive Equipments

(Electric Slide-Base, Cylinder, etc.)...550,000units/year

Various Small gears

(Standard gears, Make-to-order gears)...18 Million units/year



Headquarters and Main Plant



Anjo South Plant



Gearmotors No.2 Plant



Gear Motor Mfg. (Changzhou) Co.,Ltd.

Company History

| | | |
|-------|------|---|
| March | 1942 | Established company JAPAN SEWING MACHINE NEEDLE MANUFACTURING LTD in Nagoya. |
| June | 1955 | Started production of small fine pitch gears in a make-to-order base in domestic Japanese market. |
| May | 1964 | Anjo Manufacturing Plant newly opened in 1-1, Inoue, Izumi-cho, Anjo-shi, Aichi and started operation. (Headquarters and Main Manufacturing Plant at present) |
| July | 1965 | Changed company name to NISSEI INDUSTRY CO.LTD |
| May | 1969 | Started production and sales of power transmissions such as reducers, gear boxes, clutches, brake units, etc. |
| Oct. | 1974 | Started production of spur gear reducers "GTR Gearmotor". |
| May | 1980 | Started production and sales of GTR-H series Right angle shaft reducers (Hypoid Gearmotor) |
| Nov. | 1984 | Started production and sales of "GTR Mini Series Gearmotors"(15W~90W) |
| July | 1985 | Listed on the Second Section of the Nagoya Stock Exchange. Capital became 3,475 Million Yen |
| March | 1987 | Started sales of Stock Bevel Gear and HRH (High Ratio Hypoid Gearmotor). |
| Oct. | 1991 | Started production and sales of "GTR F Series" hollow and solid shafts. |
| March | 2000 | Obtained "ISO 9001" Certification. |
| Oct. | 2000 | Changed company name to "Nissei Corporation". |
| Dec. | 2000 | Obtained "ISO 14001" Certification. |
| Oct. | 2001 | Expanded Anjo Minami Manufacturing Plant. (CEL Line assembly started.) |
| April | 2002 | Started production and sales of "GTR A-Series"(Low Backlash Gearbox). |
| Sept. | 2002 | Started production and sales of GTRII V-Series, battery power type. |
| March | 2003 | Listed on the Second Section of the Tokyo Stock Exchange. |
| Oct. | 2003 | Started production and sales of "GTR Midi Series, Water-resistant Gearmotor". |
| Dec. | 2004 | Started production and sales of Bevel Gearbox"KOMPASS" |
| Jan. | 2006 | Certificated to Aichi Quality brand. |
| July | 2006 | Started production and sale of concentric hollow shaft and concentric solid shaft in GTR-F3 Series. |
| April | 2007 | Established manufacturing Plant No.2 for reducers. |
| Sept. | 2007 | Started production and sales of GTR-AR APQ type brushless DC gearmotor. |
| Jan. | 2008 | Started production and sales of GTR-AR Accurate Gearbox AGC/AFC type. |
| July | 2009 | Started production and sales of GTR-AR AEF type AC servo gearmotors |
| Feb. | 2010 | Started production and sales of GTR-eco IPM high-efficiency gearmotors |
| July | 2011 | Started production and sales of GTR Midi Series High-Efficiency Induction Motors.(IE2, GB2) |
| Nov. | 2011 | Establishment schedule Nissei Gear Motor Mfg. (Changzhou) Co.,Ltd. |
| Oct. | 2013 | Started production and sales of APG-type GTR-AR high-precision planetary Gearbox. |
| Nov. | 2013 | Achieved "GTR Gearmotor" sales for 10 million units. |

Parallel Shaft

MINI SERIES G Type

- Foot Mount ● Capacity: 3-Phase 15W-90W
- Flange Mount ● 1-Phase 15W-90W
- Small Flange Mount ● Reduction Ratio: 1/5- 1/1800

- Gearmotors, Gearmotors with Brakes
- Water-resistant (IP65) Gearmotors, Gearmotors with Brakes
- Gearmotors with Simple Brakes
- Speed Control Gearmotors
- Gearmotors with Clutches and Brakes



MINI SERIES L Series

- Foot Mount ● Capacity: 3-Phase 6W-40W
- Flange Mount ● 1-Phase 15W-40W
- Reduction: Ratio 1/3-1/360

- Gearmotors, Gearmotors with Brakes
- Speed Control Gearmotors
- Speed Control Gearmotors with Brakes
- Reversible Gearmotors



MINI SERIES GT Type

- Flange Mount ● Capacity: 3-Phase 15W-60W
- 1-Phase 15W-60W
- Reduction: Ratio 1/5-1/200

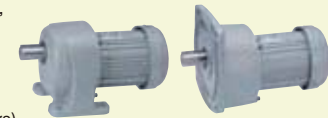
- Gearmotors, Gearmotors with Brakes
- Note: These gearmotors have the same installation dimensions as those made by other Japanese companies.



MID SERIES G3 Series

- Foot Mount ● Capacity: 3-Phase 0.1kW-2.2kW
- Flange Mount ● 1-Phase 100W-400W
- Small Flange Mount ● Reduction: Ratio 1/5-1/1200

- Gearmotors, Gearmotors with Brakes
- Water-Resistant (IP65) Gearmotors, Gearmotors with Brakes
- Gearmotors with Clutches and Brakes
- Gearbox (Double Shaft)
- S-Type Gearbox (Can Be Installed with Specified Motors)



MID SERIES GT-STEP

- Foot Mount ● Capacity: 3-Phase 25W-0.2kW
- Flange Mount ● Number of Stop: 4-12
- Normal Cycle Time: 1s- 24s

- Index Gearmotors
- Index Gearmotors with Brakes



MINI SERIES H Type

- Foot Mount ● Capacity: 3-Phase 15W-90W
- Flange Mount ● 1-Phase 15W-90W
- Reduction: Ratio 1/10-1/1800

- Gearmotors, Gearmotors with Brakes
- Water-resistant (IP65) Gearmotors, Gearmotors with Brakes
- Gearmotors with Simple Brakes
- Speed Control Gearmotors

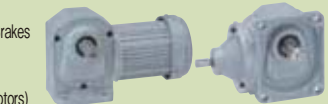


Right Angle Shaft

MID SERIES H2 Series

- Foot Mount ● Capacity: 3-Phase 0.1kW-2.2kW
- Flange Mount ● 1-Phase 100W-400W
- Reduction: Ratio 1/5-1/1500

- Gearmotors, Gearmotors with Brakes
- Water-resistant (IP65) Gearmotors, Gearmotors with Brakes
- Gearmotors with Clutches and Brakes
- Gearbox (Double Shaft)
- S-Type Gearbox (Can Be Installed with Specified Motors)



MINI SERIES F2 Type

- Concentric Hollow Shaft ● Capacity: 3-Phase 15W-90W
- Concentric Solid Shaft ● 1-Phase 15W-90W
- Reduction: Ratio 1/5-1/240

- Gearmotors, Gearmotors with Brakes
- Water-resistant (IP65) Gearmotors, Gearmotors with Brakes
- Gearmotors with Simple Brakes
- Speed Control Gearmotors



Hollow Shaft/ Solid Shaft

MID SERIES F3 Series

- Concentric Hollow Shaft ● Capacity: 3-Phase 0.1kW-2.2kW
- Concentric Solid Shaft ● 1-Phase 100W-400W
- Reduction: Ratio 1/5-1/1500

- Gearmotors, Gearmotors with Brakes
- Water-resistant (IP65) Gearmotors, Gearmotors with Brakes
- Gearmotors with Simple Brakes
- Gearbox (Double Shaft)
- S-Type Gearbox (Can Be Installed with Specified Motors)



MID SERIES F Series

- Hollow Shaft/
Solid Shaft ● Capacity: 3-Phase 50W-2.2kW
- 1-Phase 100W-400W
- Reduction: Ratio 1/5-1/1500

- Gearmotors, Gearmotors with Brakes
- Water-resistant (IP65) Gearmotors, Gearmotors with Brakes
- Gearbox (Double Shaft)
- S-Type Gearbox (Can Be Installed with Specified Motors)



Gear Boxes

KOMPASS



K Type (Metal Type)

- Output Shaft Diameters: 4-40mm
- Reduction Ratios: 1/1, 1/2
- Note: KBM and KCM are available in 1/1 only.
- Model Configurations
- KBM, KCM • KB, KC
- KNB, KNC



K Type (Bearing Type)

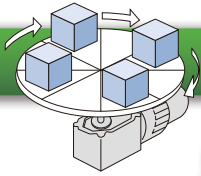


KN Type

Foreign Standards Conformance

We can make gearmotors that conform to UL, CE, and CCC standards. For more information, please contact our nearest sales office or our customer service center.

Nissei's product standards meet RoHS requirements.



Position Control

Positioning Operation

Output Shaft
Backlash
Precision

GTR *AR*

High-precision Compact
gearbox for servo-motors
AGC · AFC · APG

Coming
Soon

100W~3000W

Special
compact
design



3 Minutes
or less

GTR *AR*

High-precision gearbox
for servo-motors
AG3 · AH2 · AF3

100W~2000W

Backlash precision
of 1 min.,
3 min., 30 min.
(some models
excluded)

Variations with
reduction ratios
up to 1/240



30 Minutes

GTR *AR*

AC servo gearmotors
AEF

0.1kW~0.75kW

Pulse-train input
position control

Electronic gear
division function



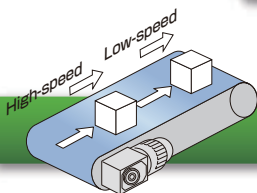
Normal
(approx. 60 minutes)

GTR *AR*

Brushless DC gearmotors
APQ

0.1kW~0.75kW

Stopping possible
through
torque control



Speed Control

Variable-Speed Operation

Range of Speed Variation
(Motor Shaft)

Motor
rotation speed:
10~2500rpm

GTR *AR*

AC servo gearmotors
AEF

0.1kW~0.75kW



Motor
rotation speed:
100~2500rpm

GTR *AR*

Brushless DC gearmotors
APQ

0.1kW~0.75kW



Motor
rotation speed:
150~2500rpm

GTR *AR*

Brushless variable-speed gearmotors
Battery-powered

50W~400W

DC
12V/24V/48V



Motor
rotation speed:
0~2500rpm

GTR *eco*

High-efficiency IPM gearmotors

0.1kW~2.2kW



The advantages of GTR reducers

Applicability

- The customer can choose according to motor capacity and reduction ratio.
- There are no limitations on mounting angle.

Lightweight, small and compact

- Aluminum, die-cast housings (some products excluded)

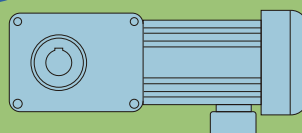
Model variety

- 15 W to 2.2 kW (small and medium) product mix
- Compatible with parallel shaft, right angle shaft, hollow/solid shaft, and all capacities

Comparisons with other companies

● Hollow shaft

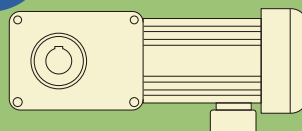
Company A



VS



Company B



VS

● GTR's advantages

- Lightweight, small and compact
- Variety of models available
- Models 90 W and under available
- No maintenance using grease lubrication required

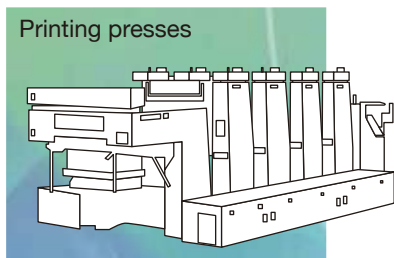
● GTR's advantages

- Concentric hollow shaft (F3 series)
- Variety of models available

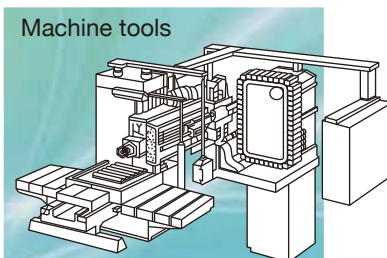
Usage applications

● Usable under diverse conditions

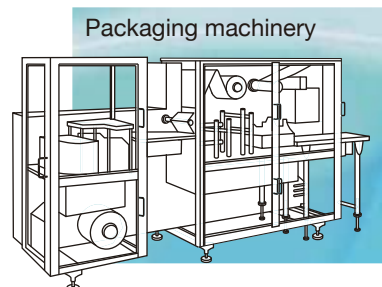
Printing presses



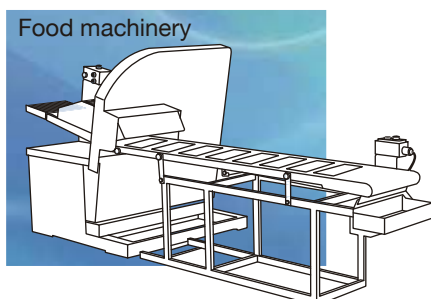
Machine tools



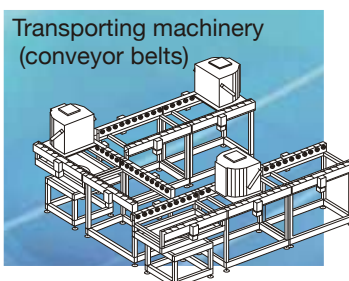
Packaging machinery



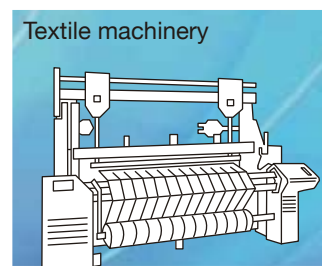
Food machinery



Transporting machinery (conveyor belts)



Textile machinery

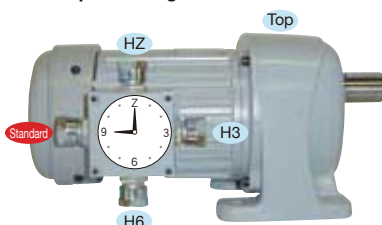


Optional and special specifications

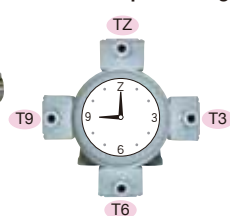
Terminal box

All models are divisible by 90° angles, with different codes assigned to each position.
Named just like a clock! Z is 12 o'clock.

Hole positioning

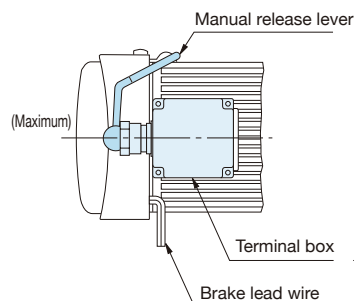


Terminal box positioning

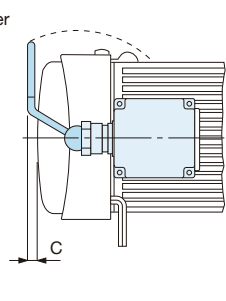


Manual release device

During operation



During brake release



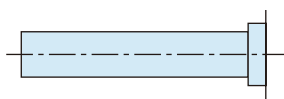
Changing output shaft diameter



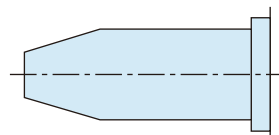
Output tap (screw) machining



Output shaft lengthening and shortening



Output shaft machining for special shapes



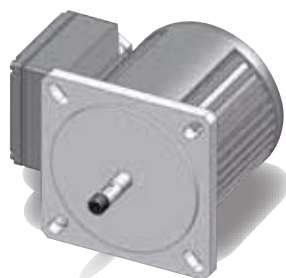
We offer a wide variety of other products. Please contact us for details.

Special Motors

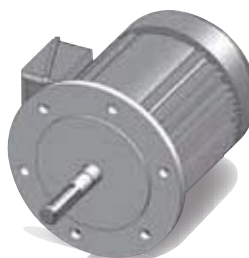
Available for
custom orders

We can provide motors that meet customers' specifications and are compatible with a variety of shapes. You can order products with particular flange shapes, output shaft shapes, and other usage requirements.

| | |
|------------|-----------------------|
| Capacity | 0.1kW-2.2kW |
| Motor type | Induction motor (IE2) |
| | IPM motor |



IPM motors



High-efficiency induction motors (IE2)



We can custom-manufacture reducers for use with our customers' equipment.

New Product Information

GTR-AR
Accurate Reducer

Planetary Gearbox APG type
100W-3000W 3arcmin·15arcmin

**Coming
Soon**



Frame size 52



Frame size 78



Frame size 98



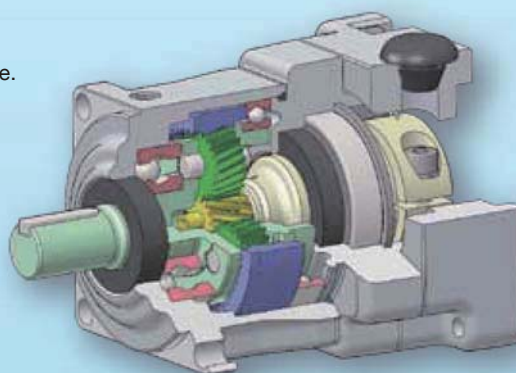
Frame size 120

Model composition

| Capacity | Precision | Ratios | | | | | | | | | |
|----------|-----------------------|----------------------|---|---------------------|----------------------|----|----|----------------------|----|----------------------|---------------------|
| | | 3 | 5 | 10 | 15 | 20 | 30 | 40 | 50 | 60 | 100 |
| 100W | 3 Arcmin 15 Arcmin | Frame size 52 (φ12) | | | | | | Frame size 78 (φ18) | | | |
| 200W | | Frame size 52 (φ12) | | | | | | Frame size 78 (φ18) | | | Frame size 98 (φ22) |
| 400W | | Frame size 52 (φ12) | | Frame size 78 (φ18) | | | | Frame size 98 (φ22) | | Frame size 120 (φ28) | |
| 750W | | Frame size 78 (φ18) | | | Frame size 98 (φ22) | | | Frame size 120 (φ28) | | | — |
| 1000W | | Frame size 98 (φ22) | | | Frame size 120 (φ28) | | | | — | | — |
| 1500W | | Frame size 98 (φ22) | | | Frame size 120 (φ28) | | | — | — | — | — |
| 2000W | | Frame size 98 (φ22) | | | Frame size 120 (φ28) | | — | — | — | — | — |
| 3000W | | Frame size 120 (φ28) | | | — | — | — | — | — | — | — |

Features

- **High-precision gears**
3 arcmin and 15 arcmin backlash precision models are available.
- **Waterproof and dust-proof**
IP65-equivalent protection grade is now standard equipment.
- **Compact design**
High reduction ratios with few steps is now possible.
- **Suitable for various types of servos!**
These gearboxes are compatible with the main servo-motors used both in Japan and abroad.



Right angle shafts — a popular sale item!

High-Precision Compact Gearbox

AFC type 100W-3000W
3arcmin·30arcmin

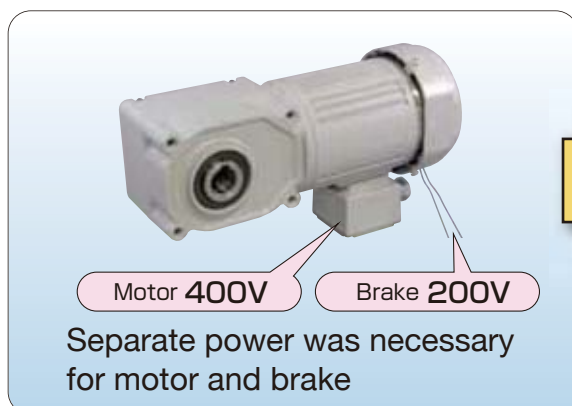


GTR MID SERIES

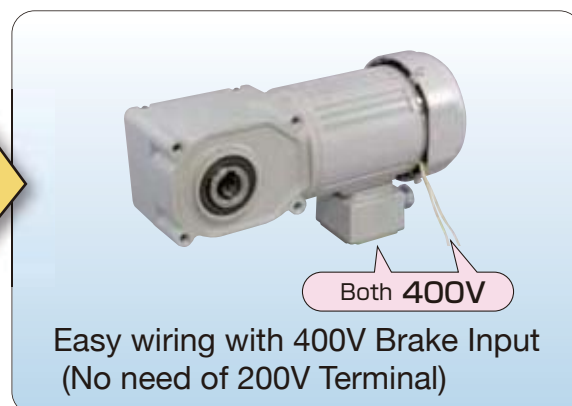
GEAR MOTOR 0.1kW-2.2kW

Launching 400V Brake Simple Wiring / Low Cost

Till Now

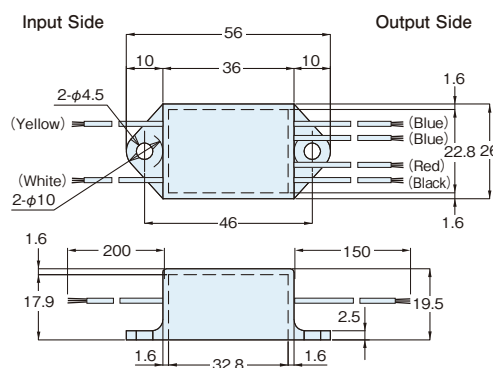


From Now on



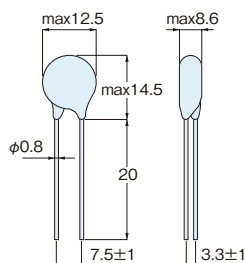
Rectifier Specs : Input Voltage 380V ~ 460V

● A400-D180



● Surge Suppressor/Option OP-ERZV10D911

Used in eliminating sparks of brake for DC Switching and AC Power Line



Nissei High-Efficiency Gear Motors

IPM Gear motors

Speed Control

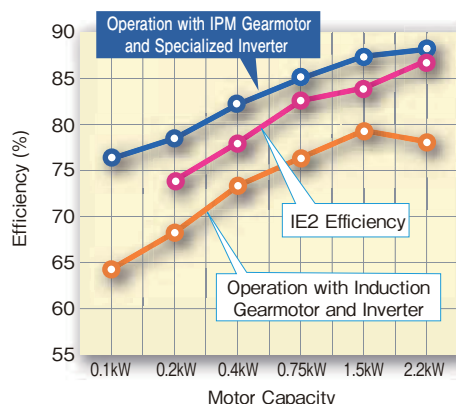


Inverter for speed control models: VF-nC3M

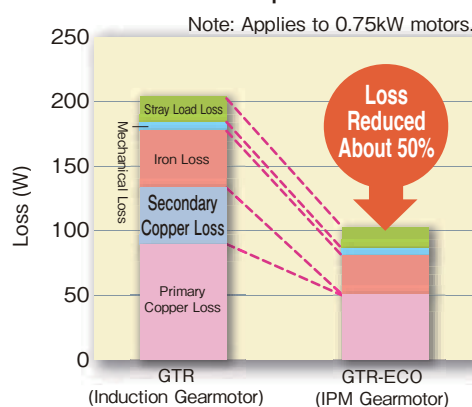
Parallel Shaft / Right Angle Shaft
Hollow Shaft / Solid Shaft
Concentric Hollow Shaft / Solid Shaft

0.1kW~2.2kW

Efficiency Comparison



Internal Motor Loss Comparison



High-Efficiency IPM Gearmotor

IPM is short for "interior permanent magnet" and refers to motors with built-in magnets.

- Since electricity does not flow through the rotor, there is no secondary copper loss.
- Magnetic flux is generated by permanent magnets, so the motor requires little electricity.
- Efficiency clears IE3 at the motor unit level.

IE3 (Super-High Efficiency): IEC60034-30 induction motor efficiency level

High-Efficiency

Environmental friendliness plus ease of use!

- Synchronous motor free from slips
Since it eliminates slips common on induction gear motors, the motor runs at the specified frequency command, regardless of load fluctuation.
- No need of dedicated cable
In comparison with a brushless DC motor having an equivalent high efficiency, the wiring is simplified because no dedicated cable is required. Signal cable is also eliminated because no magnetic pole position sensor is used. Owing to these features, the friendliness to environment has been enhanced to the level comparable with induction motors. (By our comparison)
Elimination of dedicated cable and signal cable contributes to the cost reduction.

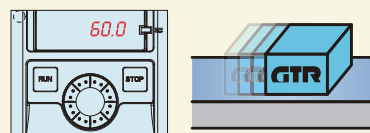
Ease of use
&
cost reduction

IPM High-Efficiency Control

The inverter unit's rotational speed is set through output voltage and current without using an encoder. In order to also achieve optimal efficiency with an IPM motor, electrical current is reduced to the minimum possible when a load is applied, resulting in an IE2-surpassing efficiency rating, even including inverter loss.

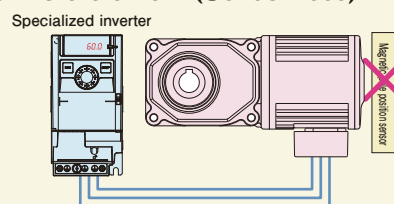
Energy-Saving

Synchronous motor



Rotation speed as specified by frequency

Without dedicated cable Without hole element (Sensor-less)

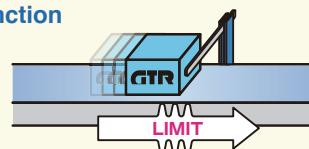


Total cost reduction
Environmental performance comparable with induction gear motors

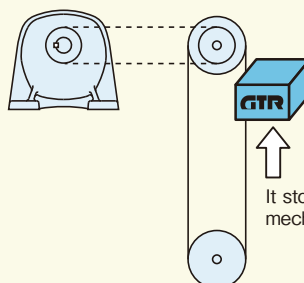
① Contact stop/contact thrust function

With the torque limiting function

Contact stop/
contact thrust



② Brake sequence function

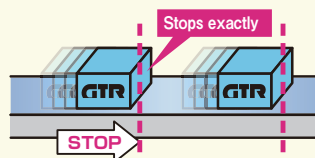


Maintenance free by
reducing abrasion
on the mechanical
brake!!

It stops with the servo lock and then the
mechanical brake is applied.

③ Simplified servo lock

With the simplified servo lock function



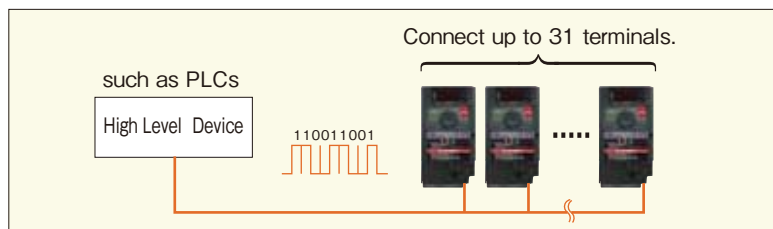
No need of brake for
horizontal operation
(Cost reduction)
Frequency of start/stop
is 30 times/min.

④ Torque limiting function

It restricts torques generated by the motor in order to protect the mechanical system. (It cannot limit instantaneous torques.)
• Torque limit value can be switched in 2 steps via the input terminal.

⑤ RS 485 Interface included as Standard

- Easy to access through Inverter or Networkcommunications links
- Communication speed: Max 38.4 kbps
- Can support Modbus RTU Protocol/ TOSHIBA Protocol (Please contact us in case of using CC-Link or other Network Protocols)

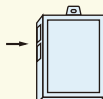


⑥ Inverter Console Software [PCM001Z]

By installing "PCM001Z" on your computer, it is possible to edit parameters and monitor status connecting our dedicated inverter to your computer



OP-USB001Z

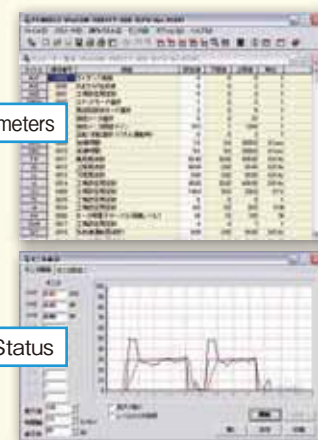


PC



Edit Parameters

Monitor Status



Nissei High-Efficiency Gear Motors

GTR MID SERIES 0.75kW-2.2kW High-Efficiency Induction Motors

IE2 for S. Korea



GB2 for China



● Main differences between current products

| | 0.75kW | 1.5kW | 2.2kW |
|--------------|--------|--------|--------|
| Total length | +10mm | +0mm | +15mm |
| Weight | +0.6kg | +0.2kg | +1.3kg |



IE2 for Europe

Main Features

- (1) Successors to the many variations of our older models; IP65 and RoHS compliant.
- (2) Compatible with our older models. Identical mounting, output shaft diameter, and axle center height.
- (3) Same functionality as older models (refer to the table below).
- (4) Lightweight and compact.
- (5) Fast delivery times.

● IE2 Feature Comparison (Our Company)

Values with actual load

| 220V/60Hz | | Current IE1 | High-Efficiency IE-2 | Difference |
|-----------|----------------------|-------------|----------------------|------------|
| 0.75kW | Rated rotation speed | 1709rpm | 1726rpm | +17rpm |
| | Current value | 3.2A | 3.1A | -0.1A |
| 1.5kW | Rated rotation speed | 1736rpm | 1747rpm | +11rpm |
| | Current value | 5.9A | 5.7A | -0.2A |
| 2.2kW | Rated rotation speed | 1714rpm | 1745rpm | +31rpm |
| | Current value | 8.2A | 8.0A | -0.2A |

| 0.75kW/1.5kW/2.2kW | High-Efficiency IE2 |
|---|---|
| Allowable torque | No differences from our current GTR products. For more details, please see our GTR Mid Series catalog. |
| Allowable moment of inertia | |
| Allowable start and stop frequency: 10 times/minute | |
| Service factor for load torque | |
| Moment of inertia calibration coefficient | |

Design schematics downloadable as PDF and DXF files

<http://www.nissei-gtr.co.jp/english>

You can use our website to search for and select model names.

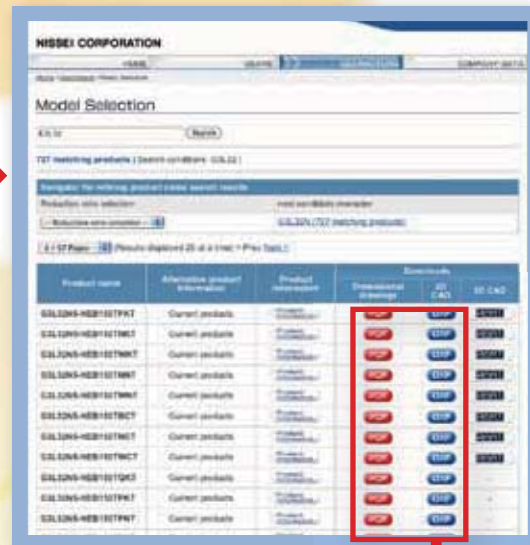
You can also download catalogs and instruction manuals (in English).

Product search and selection

Website users can download schematics for high-efficiency gearmotors as well.



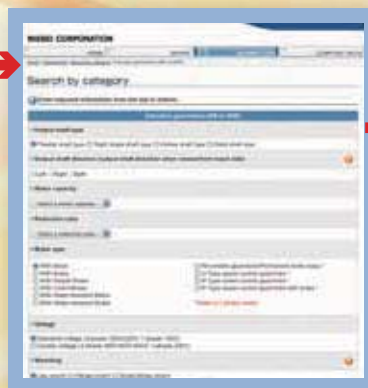
Model name search



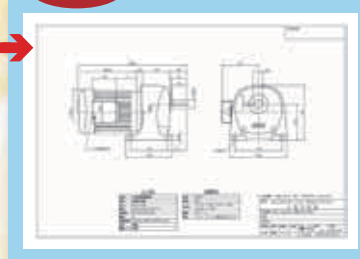
Searching by category

Induction reducers

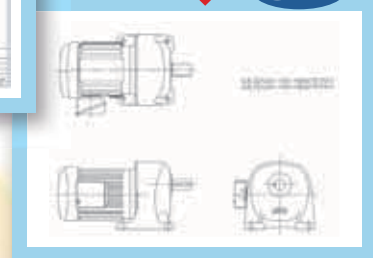
Website users can select model names by mounting category and motor capacity.



PDF



DXF



Users who don't know the model name can search by category.

Lots of data

Catalog downloads

Catalogs can be downloaded (as PDFs).



Packed with information, easy to read, and easy to use. We hope you make good use of the Nissei website.

NISSEI CORPORATION

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