High Reliability, High Performance and Value  高性能和价值 

FANUC  AC SERVO MOTOR  βi series  
FANUC  AC SPINDLE MOTOR  βi series  
FANUC  SERVO AMPLIFIER  βi series  

Image of FANUC βi series products including AC servo motors and amplifiers.
High Reliability, High Performance and Value βι series Servo

**FANUC AC SERVO MOTOR βιS series**
**FANUC AC SPINDLE MOTOR βιI series**
**FANUC SERVO AMPLIFIER βιSVSP series, βιSV series**

βι series SERVO with high performance and value has enough performance and functions for feed axis and spindle axis of machine tools.

*1) S of βιS means “Strong motor with neodymium magnets”.

*2) I of βιI means “Induction”. P of βιI means “wide constant Power range”.

*3) SV of βιSVSP means “Servo” and “SP” means “Spindle”.

*4) SV of βιSV means “Servo”.

---

**System configuration**

[Diagram showing system configuration with βι series components connected through an optical fiber cable]
FANUC AC SERVO MOTOR βιS series

High performance and value AC SERVO MOTOR suited to feed axis of machine tools and industrial machines.

- **Smooth rotation and compact size**
  Optimized winding design and mechanical design makes smooth rotation of feed axis and compact size with shorter axial length.

- **Quick acceleration**
  High torque and quick acceleration for this small-size light-weight by original rotor shape.

- **High environmental resistance**
  Protection level IP65

- **Compact and high-resolution βι series Pulsecoder**
  Compact and high-resolution βι series pulsecoder contributes to precise axis feed. (resolution: 128,000/rev.)

- **Addition of models suited to feed axes of middle size machines**
  Models of stall torque 27Nm and 36Nm are added. They are suited to middle size economical lathes and machining centers.

FANUC AC SPINDLE MOTOR βιI series

High performance and value AC SPINDLE MOTOR suited to spindle axis of machine tools

- **Compact size and high basic performance**
  Optimized winding design and effective cooling structure makes high power and high torque are achieved and compact size.

- **High efficiency and low heat generation by SPINDLE HRV Control**
  High efficiency and low heat generation are achieved with SPINDLE HRV Control, the same feature as αΙ series.

- **βιΙP series driven by smaller amplifier**
  βιΙP series with smaller amplifier realize same torque as βιΙ series. This is the best suited spindle motor for economical lathes.

- **Addition of models suited to spindles of middle size machines**
  Models of rated output 15/18.5kW are added. They are best suited to middle size economical lathes and machining centers.
FANUC SERVO AMPLIFIER \( \beta iSVSP \) series

High reliability, high performance and value All-in-one packaged (servo 3 axes + spindle 1 axis) SERVO AMPLIFIER

- \textbf{High performance and value}
  High performance and value and fewer cable wiring are achieved by All-in-one packaged (servo 3 axes + spindle 1 axis), and enough performance and functions are also provided.

- \textbf{Energy Saving}
  Power source regeneration returns the deceleration energy of the motor to the power source, contributing energy saving.

- \textbf{Gravity-axis drop prevention function at power failure}
  Tool and work of machine is protected from breakage at power failure by activating the motor brake quickly using built-in power failure detection function.

- \textbf{Cs contouring control}
  For spindle separated sensor, \( \alpha IBZ \) sensor or \( \alpha ICZ \) sensor is supported to Cs Contouring control in addition to \( \alpha I \) Positioncoder.

- \textbf{Addition of models suited to feed axes of middle size machines}
  Models of rated output 15/18.5kW are added. They are best suited to middle size economical lathes and machining centers.

FANUC SERVO AMPLIFIER \( \beta iSV \) series

SERVO AMPLIFIER with high performance and value suited to basic and additional axis of machine tools

- \textbf{Integrated with power supply}
  Integration of power supply contributes to easy extension of additional axes. 2 axes type are prepared adding to 1 axis type.

- \textbf{Enough control performance}
  By combination with latest digital servo technology, enough performance is achieved for main axis and additional axis of machine tools.

- \textbf{Smart maintenance}
  Smart maintenance can be performed by Amplifier ID information, and connector of power cable for servo motor.
Servo Control for High Precision

SERVO HRV Control

High speed and high precision servo control

SERVO HRV3 control is prepared as standard with Series Oi/Oi Mate.

By combination of hardware technology such as “Servo motor with ultra smooth rotation”, “Accurate current detection”, “High response and high resolution Pulsed encoder”, and ‘SERVO HRV3 Control’, high speed and high precision feed control can be realized.

SPINDLE HRV Control

Quick acceleration and response spindle control

High response and high precision spindle control is achieved with fast velocity loop processing and high resolution detector circuit. Optimum spindle orientation minimizes orientation time, under condition of various load inertia also by making always full use of spindle motor torque.

In rigid tapping with high response control and feed-forward, reduced synchronous error and shorter cycle time are expected.

Servo Tuning Tools

Parameter Setting Support Screen

“One-shot setting” for high speed and high precision control and “One-shot tuning” for best velocity loop gain can be set on Parameter Setting Support Screen of Series Oi/Oi Mate.

SERVO GUIDE

This software provides the integrated environment for making test programs, setting parameters, and data measurement needed for servo and spindle tuning. It is useful not only for servo tuning but also for the measurement of spindle characteristic.

It has substantial automatic tuning functions for gains filters, and others.

Connection from PC to CNC is easy and direct, through PCMCIA-LAN card, attached on the CNC front panel.

With SERVO GUIDE, quick and smart optimization of servo and spindle can be achieved.
**i** series Servo with High Reliability, High Performance and value suited to economical lathes

**FANUC AC SERVO MOTOR** \(\beta iSc\) series

**FANUC AC SPINDLE MOTOR** \(\beta i lc\) series

**FANUC SERVO AMPLIFIER** \(\beta iSVSPc\) series

- Servo motors, spindle motors, and servo amplifiers with high performance and value only for \(Oi\) Mate-TD suited to economical lathes

---

**System configuration**

---

1. \(S\) of \(\beta iSc\) means "Strong motor with neodymium magnets".
2. \(I\) of \(\beta i lc\) means "Induction".
3. \(SV\) of \(\beta iSVSPc\) means "Servo" and "SP" means "Spindle".
4. \(C\) of \(\beta iSc\), \(\beta i lc\), and \(\beta iSVSPc\) means "Cost-effective".
FANUC AC SERVO MOTOR βiSc series

- Servo motor best suited to economical lathes

  Stall torque: 2Nm - 20Nm
  Maximum speed: 2,000min⁻¹ - 4,000min⁻¹
  Without ID and temperature information

FANUC AC SPINDLE MOTOR βiSc series

- Spindle motor best suited to economical lathes

  Continuous rated output: 3.7kW, 5.5kW, 7.5kW, 11kW
  Short time rated output: 5.5kW, 7.5kW, 11kW, 15kW
  Maximum speed: 6,000min⁻¹

FANUC SERVO AMPLIFIER βiSVSPc series

- Servo amplifier for βiSc series servo motor and βiSc series spindle motor

  Maximum current (Servo axis): 2 axes 20A/20A, 40A/40A, 3 axes 20A/20A/20A, 40A/40A/40A
  Short time rated output power (Spindle axis): 7.5kW, 11kW, 15kW

Spindle sensor-less control

- Improvement of spindle axis sensor-less control utilizing spindle speed information detected by αiBZ Sensor or αi Positioncoder

  Power up at high speed  Shorter acceleration/deceleration time  Speed stability up at low speed
FANUC operates customer service and support network worldwide through subsidiaries and affiliates. FANUC provides the highest quality service with the prompt response at any location nearest you.

**FANUC Training Center**

FANUC Training Center operates versatile training courses to develop skilled engineers effectively in several days.

Inquiries: Yamanakako-mura, Yamanashi, Japan 401-0501

Phone: 81-555-84-6030

Fax: 81-555-84-5540

---

- **America**
  - FANUC FA America CORPORATION
    - Tel 1-847-898-5000
    - Fax 1-847-898-5001

- **Europe, the middle east and Africa**
  - FANUC FA Europe S.A.
    - Tel 49-7158-187100
    - Fax 49-7158-187111
  - FANUC FA Deutschland GmbH
    - Tel 49-7158-187300
    - Fax 49-7158-187411
  - FANUC FA France S.A.S.
    - Tel 33-1-4669-6333
    - Fax 33-1-4669-0325
  - FANUC FA UK LIMITED
    - Tel 44-1895-634182
    - Fax 44-1895-676140
  - FANUC FA Italia S.r.l.
    - Tel 39-02-4887-291
    - Fax 39-02-4571-3566
  - FANUC FA Iberia S.A.
    - Tel 34-93-664-4820
    - Fax 34-93-665-0695
  - FANUC FA Pac. vs Tic. Ltd. Sti.
    - Tel 39-2-963-3319
    - Fax 39-2-963-2873
  - FANUC FA Bulgarska Ltd.
    - Tel 359-2-963-3319
    - Fax 359-2-963-2873
  - FANUC FA CZ s.r.o.
    - Tel 420-234-072-950
    - Fax 420-234-072-960
  - FANUC FA Hungary Kft
    - Tel 06-23-507-400
    - Fax 06-23-507-401
  - FANUC Automation LLC
    - Tel 7-419-956-9780
    - Fax 7-419-956-9785

- **Asia and Oceania**
  - KOREA FANUC CORPORATION
    - Tel 82-55-278-1200
    - Fax 82-55-294-9826
  - TAIWAN FANUC FA CORPORATION
    - Tel 886-4-2369-0522
    - Fax 886-4-2369-0771
  - BEIJING FANUC Mechatronics CO., LTD.
    - Tel 86-10-6298-4726
    - Fax 86-10-6298-4741
  - FANUC INDIA PVT. LTD.
    - Tel 91-80-2992-0057
    - Fax 91-80-2992-0051
  - FANUCTHAI LIMITED
    - Tel 66-2-714-6111
    - Fax 66-2-714-6120
  - FANUC MECHATRONICS (MALAYSIA) SDN. BHD.
    - Tel 60-3-7628-0110
    - Fax 60-3-7628-0220
  - PT. FANUC INDONESIA
    - Tel 62-21-4584-7285
    - Fax 62-21-4584-7288
  - FANUC SINGAPORE PTE. LTD.
    - Tel 65-6-567-8566
    - Fax 65-6-566-5937
  - FANUC OCEANIA PTY. LIMITED
    - Tel 61-2-8822-4600
    - Fax 61-2-8822-4666
  - FANUC PHILIPPINES CORPORATION
    - Tel 63-2-813-3155
    - Fax 63-2-813-3175
  - FANUC VIETNAM LIMITED
    - Tel 84-8-3824-6638
    - Fax 84-8-3824-6637

- All specifications are subject to change without notice.
- No part of this catalog may be reproduced in any form.
- The products in this catalog are controlled based on Japan's "Foreign Exchange and Foreign Trade Law". The export from Japan may be subject to an export license by the government of Japan. Further, re-export to another country may be subject to the license of the government of the country from where the product is re-exported. Furthermore, the product may also be controlled by re-export regulations of the United States government. Should you wish to export or re-export these products, please contact FANUC for advice.