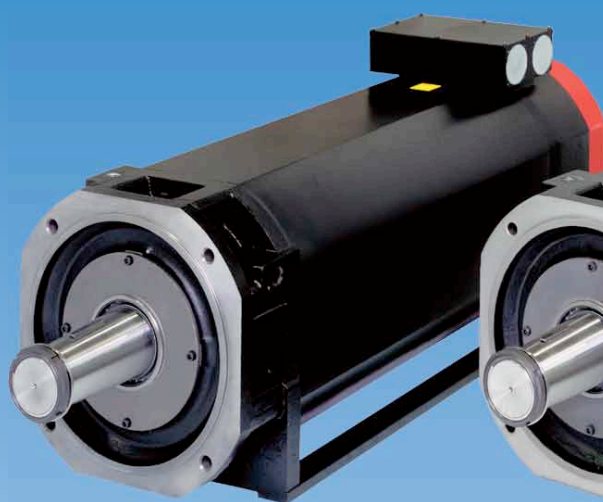
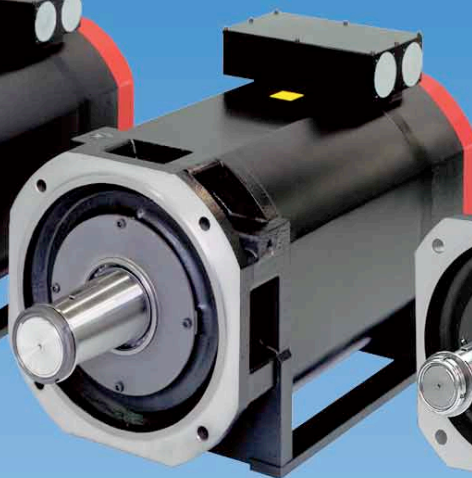


Large Servo Motor for Industrial Machines with Electric Servo

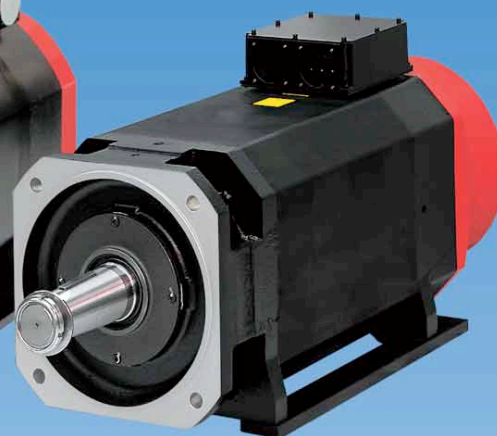
# FANUC LARGE SERVO MOTOR $\alpha$ iS series



$\alpha$ iS3000HV



$\alpha$ iS2000HV



$\alpha$ iS1000HV

# Large Servo Motor for Industrial Machines with Electric Servo

## FANUC LARGE SERVO MOTOR $\alpha$ iS series

### Features

Large Servo Motor models with large torque and high power, enabling electric drive of large industrial machines.

By utilizing latest neodymium magnets, both compact size and large output are realized.

At the same time, by “Multi-drive with standard servo amplifiers” method, high reliability, maintainability and high power are achieved.

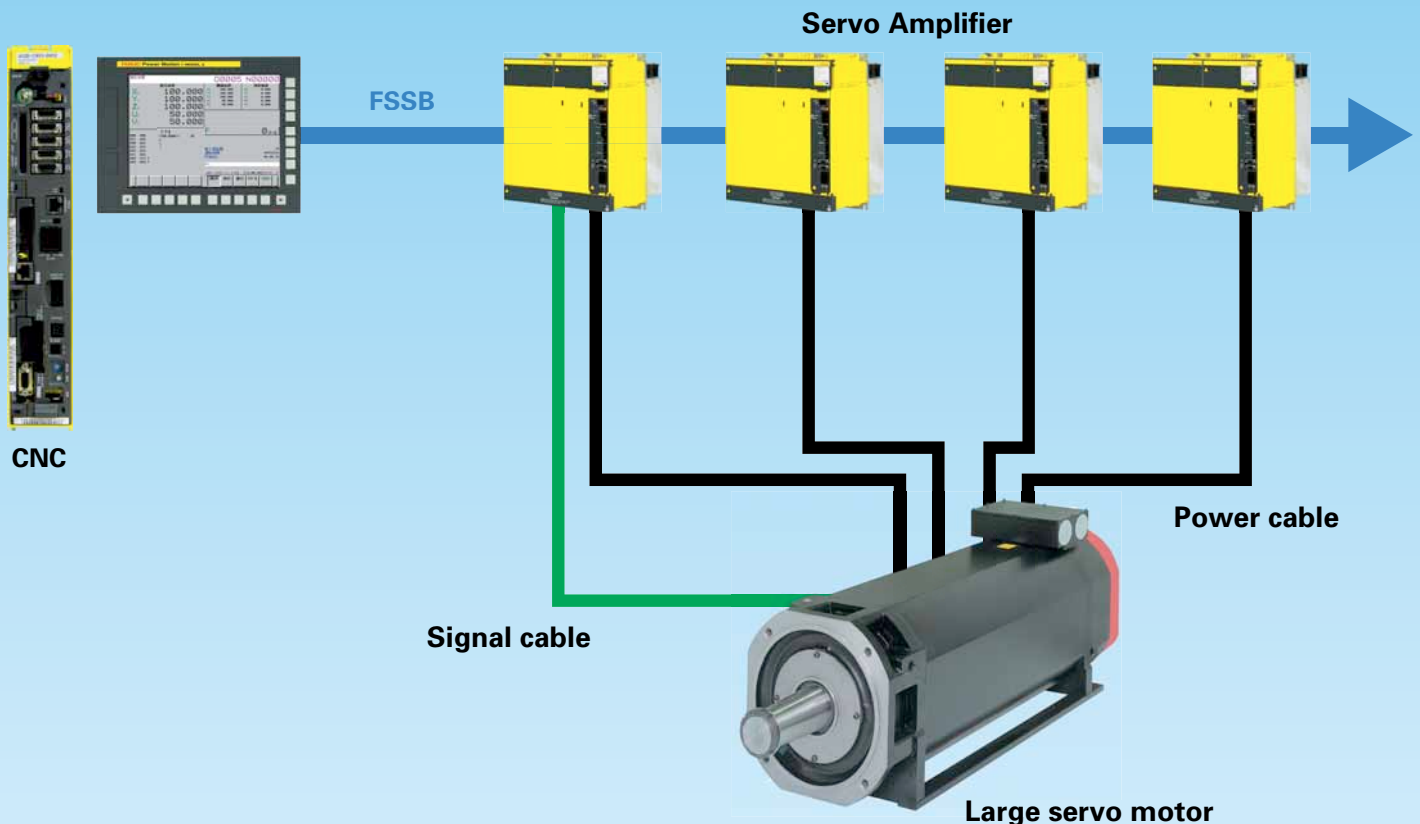
Best suitable especially for electric injection machines, electric press machines.

### System configuration

The system configuration of 4 amplifiers drive (Multiple drive with standard servo amplifiers) is shown as follows.

Four power cables to the servo motor are connected to each servo amplifier. The signal cable is connected to one of 4 amplifiers.

Each amplifier receives the command from CNC and drives the large servo motor.



## FANUC LARGE SERVO MOTOR $\alpha iS$ series

Worldwide largest synchronous servo motor was developed by latest FEM analyzing technology. The line-up has 18 models.

Stall torque: 100~3000Nm Rated power: 11~220kW

Thinly-made and super high resolution (1,000,000/rev)  $\alpha i$  series Pulsecoder is mounted same as standard motor.

It is also intelligent servo motor with ID information of motor and Pulsecoder for better maintenance.



$\alpha iS3000HV$

$\alpha iS2000HV$

$\alpha iS1000HV$

$\alpha iS500$

$\alpha iS300$

$\alpha iS200$

$\alpha iS100$

\*) "S" of  $\alpha iS$  means "Strong motor with neodymium magnets".

## FANUC LARGE SERVO AMPLIFIER $\alpha i$ series

High reliability and high maintainability are realized by applying the standard servo amplifiers which already have been used with many machine tools.

Large output power is realized by "Multiple drive with standard servo amplifiers".

By adopting the power source regeneration and the latest low loss power device, significant effect of the energy saving is achieved.

For safety, the dynamic brake function is supported. It can stop a motor quickly on emergency occasion.



Power  
Supply

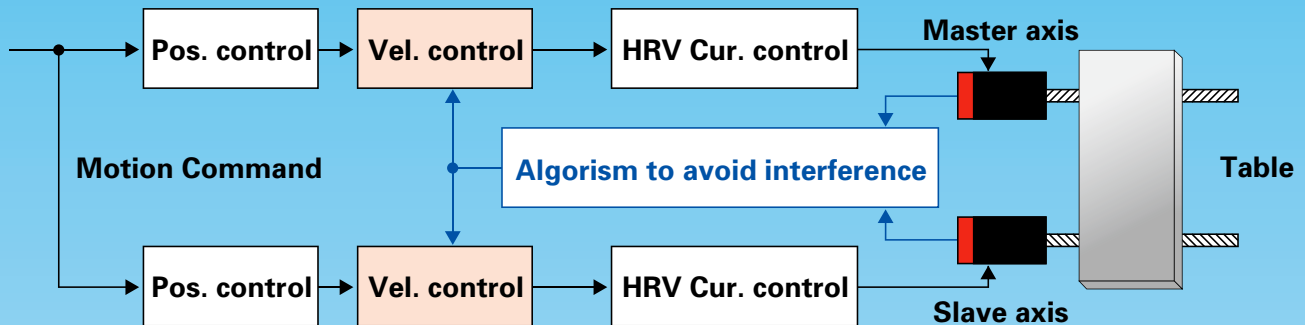
Servo Amplifier

## SERVO HRV Control

FANUC Servo control technology (SERVO HRV Control), which has plenty of achievements on feed axis of machine tool with functions for high precision or avoiding mechanical resonance and so on, is applied for large servo motor system also.

In case of driving one axis by plural motors, sometimes stability is not secured because of interference between motors. Several stabilizing functions to prevent interference between axes, are prepared in order to secure stability.

(Several patents are pending)

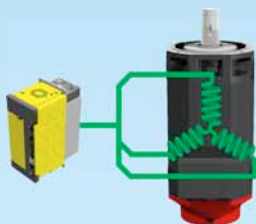


## Technologies for Larger Output

In case of driving large industrial machine by electric servo motor, large output servo system is required. In order to realize larger output, the following technologies are applied.

1. Large capacity of servo motor and amplifier
2. Driving large motor by "Multi-drive with standard servo amplifiers"
3. Driving one mechanical axis using plural motors

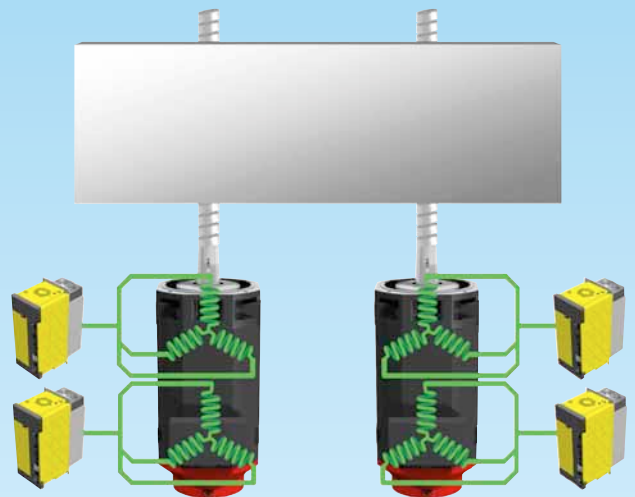
In each case, highly reliable standard amplifier with power source regeneration can be applied.



1. Enlarging of servo motor and amplifier



2. Driving large motor by "Multi Amplifiers Drive"



3. Driving one mechanical axis by "Multi Motors Drive"

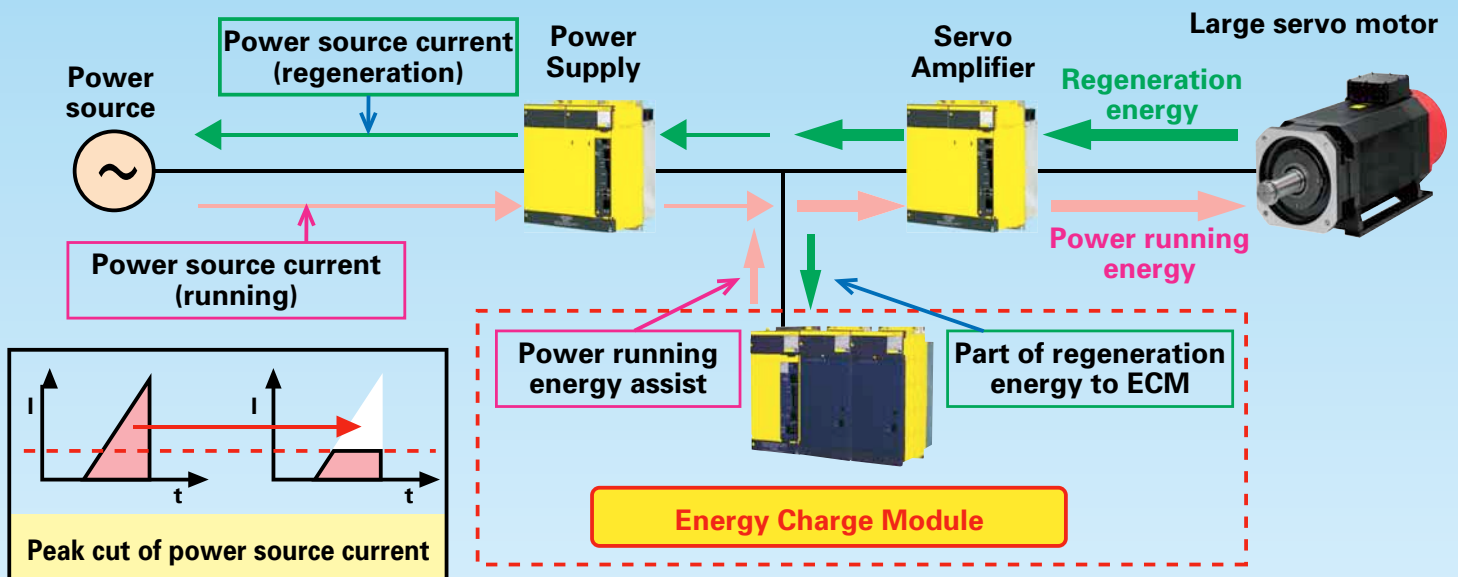
## Energy Saving

FANUC Servo Amplifier adopts power source regeneration which returns deceleration energy of a motor to power source, so it contributes to energy saving. For the design of the motor, the magnetic circuit of the motor is optimized by the magnetic analysis with FEM, so that torque characteristic and efficiency of the motor are very much improved. FANUC is also promoting electrification of injection machines and press machines, and contributing energy saving of industrial machine. Therefore FANUC LARGE SERVO MOTOR  $\alpha i$  series won a prize of 2003 Chief of Agency for Natural Resources and Energy Award for Energy Saving Equipment.



## Energy Charge Module

In industrial machines, average power consumption is reduced by using servo motor instead of hydraulic, so it contributes to energy saving. On the other hand, if the electrical facilities is not enough, fluctuation of power source voltage during acc./dec. becomes larger. In this case, Energy Charge Module performs peak-cut of power source current and reduces fluctuation of power source voltage.



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