

Thermo Fisher Scientific F5 robot and Controller

Basic Description

The F5 robot is a result of collaboration between Thermo Fisher Scientific and FANUC Robotics.

The F5 is the next generation in electric servo-driven bench top robots offering best-in-class performance in a light, efficient, and accurate package.

The new F5's table top size, slimmer arm profile, lighter weight, highest dexterity, faster sustained speed, and superior positioning accuracy make it the perfect solution for countless industrial and commercial applications.

- Machine tending
- Material handling
- Assembly
- Picking and packing
- Part washing
- Material removal
- Dispensing
- Testing and sampling
- Education and research

Features and Benefits

- 6 degrees of freedom
- ± 0.02 mm repeatability at full payload and full speed within entire robot work envelope
- Up to 5 kg payload at wrist
- Best-in-class wrist moment and inertia's for real-world EOATs and workpieces
- Pneumatic and electrical connections for EOAT conveniently located on J4
- Double-acting solenoid valves integrated in forearm or Thermo CRS Servo Gripper connection simplifies EOAT dressout
- Highest joint speeds maximize throughput
- Tabletop size, slim wrist, and small footprint permit operation in tight work spaces.
- Robot can flip over backwards for a larger work envelope

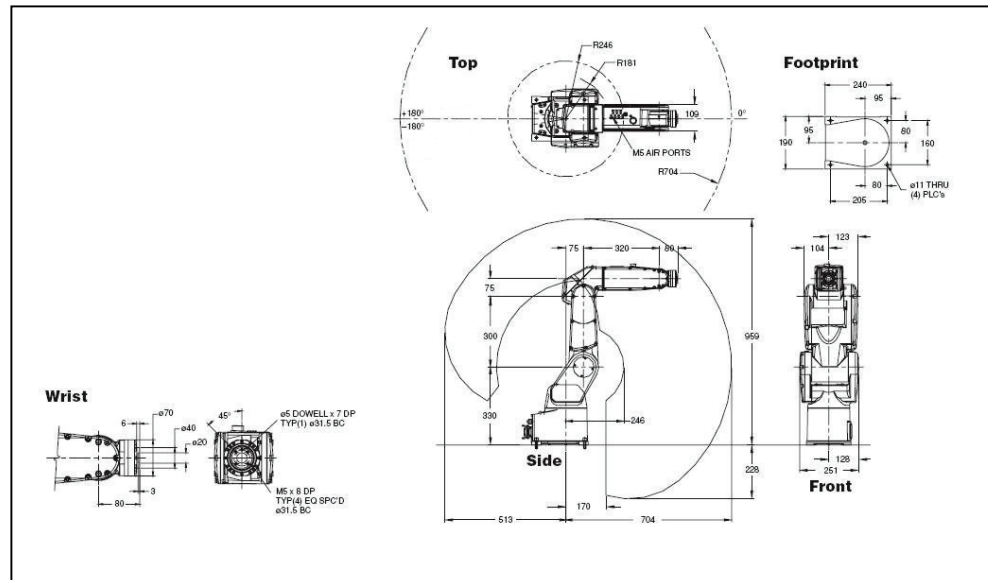


- Enclosed mechanical design eliminates cables and hose snagging
- Upright, angle, wall or invert mounting increases installation flexibility
- Higher rigidity and the most advanced servo technology enable smooth motion without vibration in high speed operation
- Advanced communication capabilities via standard Ethernet and serial connections
- Integrated PMC provides ladder-logic control for peripheral devices
- Sealed bearings and brushless AC motors
- Standard "C" size batteries for encoder backup
- Grease fittings on all lubrication points for quick and easy preventive maintenance

Robot and Controller Options

- 110 VAC single phase input voltage
- iPendant™, a color, Internet ready teach pendant for even easier programming and custom cell user interface design
- Extended networked I/O capabilities: I/O Link, DeviceNet, Profibus
- Supports a variety of intelligent functions including Vision (built-in vision-ready controller), Servo Gripper, and force sensing.

Thermo Fisher F5 robot and Controller



Items		
Axes		6
Payload - Wrist (kg)		5
Reach (mm)		704
Repeatability (mm)		±0.02
Interference radius (mm)		181
Motion range (degrees)	J1	360
	J2	200
	J3	388
	J4	380
	J5	240
	J6	720
Motion speed (degrees/s)	J1	350
	J2	350
	J3	400
	J4	450
	J5	450
	J6	720
Wrist moment N-m (kgf-m)	J4	11.9 (1.21)
	J5	11.9 (1.21)
	J6	6.7 (0.68)
Wrist inertia (kg-m ²)	J4	0.3
	J5	0.3
	J6	0.1
Mechanical brakes		All axes
Mechanical weight (kg)		27
Mounting method ⁽¹⁾		Floor, ceiling, angle & wall
Installation environment:		
Ambient temperature °C		0 to 45
Humidity		Normally: 75% or less Short term (within a month): 95% or less. No condensation
Vibration m/s ² (G)		0.5 or less

Items	Specifications
Power supply	- 200-220 VAC Single Phase, 110 VAC option
Controlled axes	- 24
Serial/host comm	- One 100-Base-TX/10 Base-T, Ethernet port (RJ-45)
Teach pendant	- Color graphic iPendant with available touch screen option
iRvision	- Built-in camera and laser unit interface for 2-D and 3-D vision applications
Built-in I/O	- 28 inputs/24 outputs 24 VDC
Safety features	- Dual-Check Safety (DCS) circuit
Memory card	- PCMCIA type 2 interface (ScanDisk compatible)
Options:	
I/O sub-systems	- Model A and Model B I/O; FANUC I/O link
Remote I/O subsystems	- DeviceNet (slave) - Profibus (master/slave) - Ethernet I/O (EIP and EGD)
Integrated PMC	- Ladder logic control for peripheral devices - Including ladder monitor with hot edit on iPendant
iRvision	- Remote-mounted multiplexer to support up to eight 2-D cameras and/or four 3-D laser units
Force Sensing	- Force Sensor interface option



Notes:

(1) J1 and J2 axis motion range will be limited for angle and wall mount installations.

Note: Dimensions are shown in millimeters.

Detailed CAD data available upon request.

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Thermo Fisher F5 pendant and software

FANUC i Pendant

The i Pendant is equipped with a 6.4 inch color LCD and capable of displaying multiple screens simultaneously, as well as displaying color graphic data. It is also possible to make operation panels and display them on the screen.



The i Pendant links the robots to the factory network on Ethernet through the robot controllers. By using a browser, computers and servers on the factory network can be displayed on the i Pendant screen to be operated also from the i Pendant. For example, when the PC containing the electronic manual for a robot is selected, the manual can be referenced from the i Pendant screen. Also, when the PC with the parts drawings and their data is selected, these data can be referenced in the form of the HTML file on the Internet.

The i Pendant can also be linked with the ROBOGUIDE to confirm the potential application layout in the 3D model on the i Pendant display screen. The link to the CIMPLICITY that monitors the factory enables a view of the CIMPLICITY data on the i Pendant.

The i Pendant is a new way to incorporate the IT technologies into the operation of robotic system, whereby bringing about significant enhancements in efficiency and productivity on the factory floor.

FANUC Robot's HandlingTool Software



Description

FANUC Robot's HandlingTool software integrated with a FANUC robot and controller provides an effective process solution for most material handling, material removal and assembly applications. HandlingTool simplifies the setup, programming, and operation of FANUC robots. Built-in macro functions, menu-driven programming tools and point-and-shoot position teaching features allow users to create robot application programs, test an application and run production with minimal training and programming experience.

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