

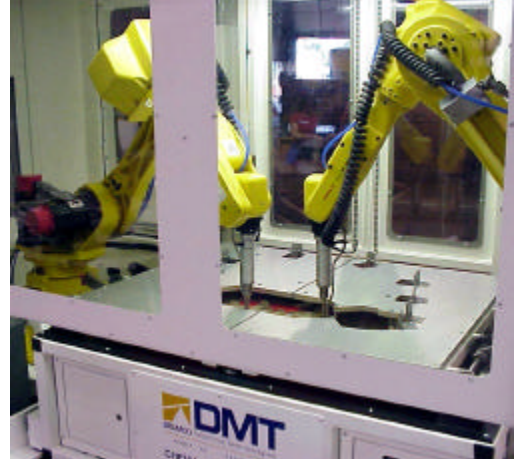


Integrated Robot Systems

DMT has years of experience designing and manufacturing integrated robot systems.

Our integration experience includes 3, 4, and 6 axis robotic systems performing a variety of tasks.

- ⌘ Standard Pick-and-Place
- ⌘ Ultrasonic Welding on Plastics
- ⌘ Hot Melt Adhesive applicators
- ⌘ Component Soldering onto PCBs.



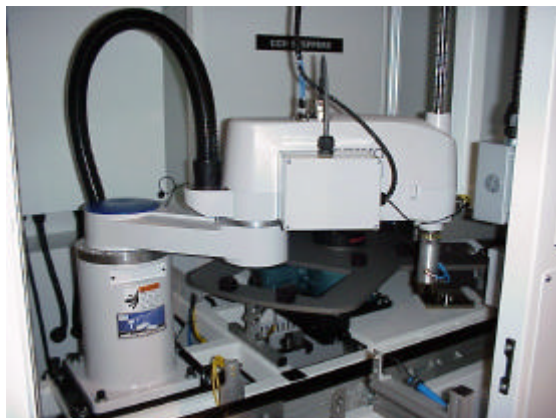
6-Axis
Fanuc M-16i
Robots



4-Axis
Seiko
Epson

DMT has employed many brands of robots.

- ⌘ Fanuc
- ⌘ Seiko
- ⌘ Epson
- ⌘ Industrial Actuators (IAI)
- ⌘ Adept



3-Axis
IAI
Adept

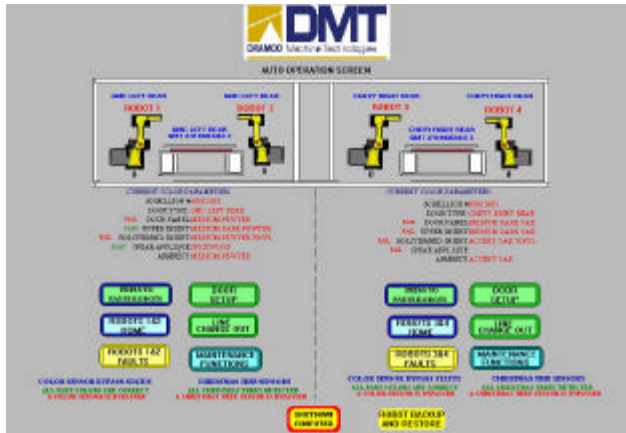


Dramco Machine Technologies
5106 Waterlick Road, Forest, VA 24551
Phone: (434) 534-0500, (434) 534-0501 (Fax)

Integrated Robot Systems

**6-Axis
 Fanuc M-16i
 Ultrasonic Welding
 Application**

- ≡≡ 2 Bays
- ≡≡ 2 Fanuc M-16i Robots per Bay
- ≡≡ Allen Bradley SLC 5/04 per Bay
- ≡≡ 4 Interchangeable Modules
- ≡≡ On-board SCADA Computer
- ≡≡ Safety Doors and Light Curtains
- ≡≡ Completely Integrated Operator Controls



*Integrated Operator
 Interface
 (Wonderware)*

*Simultaneous Production
 with 2 Robots per Bay,
 4 Robots total*

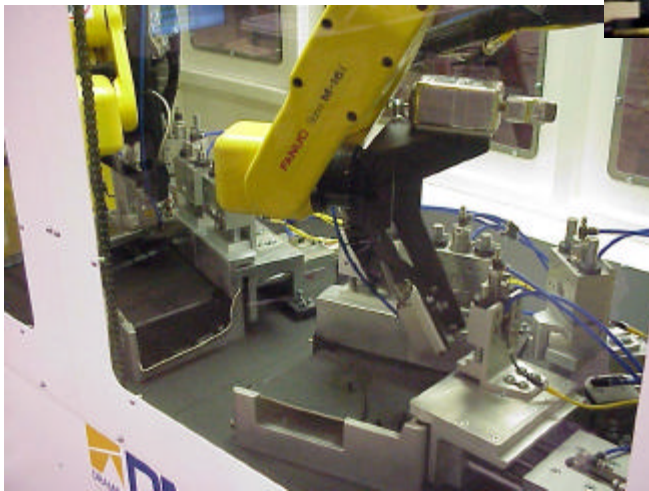




Integrated Robot Systems

6-Axis Fanuc M-16i Hot Melt Adhesive Application

- ≡≡ 2 Fanuc M-16i Robots
- ≡≡ Allen Bradley SLC 5/04 PLC
- ≡≡ Allen Bradley PV600 Touchscreen
- ≡≡ 3 Interchangeable Modules
- ≡≡ Safety Door and Light Curtains
- ≡≡ Completely Integrated Operator Controls



*Simultaneous Production
with 2 Robots*



*Typical Interchangeable
Module*



*End-of-Arm
Tooling*

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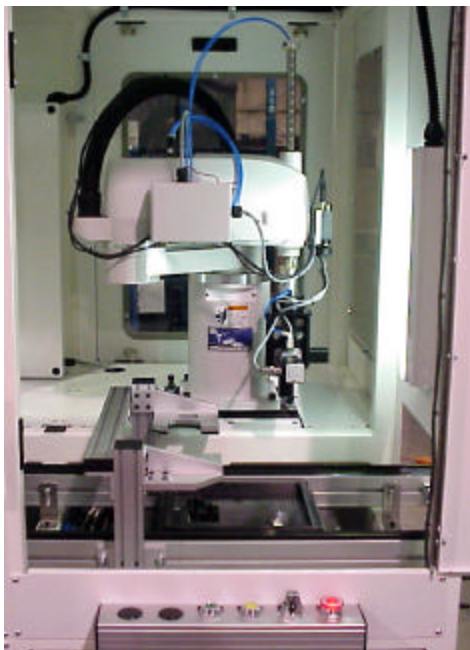
Integrated Robot Systems

4-Axis Seiko EL 650/320 Pick-and-Place Component Press

- ≡≡ 2 Seiko Robots
- ≡≡ On-board Robot Control PCs
- ≡≡ Force Monitoring
- ≡≡ Machine Vision System
- ≡≡ Integrated with Bosch TS/+ Conveyor
- ≡≡ Completely Integrated Operator Controls



*Force Monitoring Detects
Proper Fit*



*Vision System Detects Base
Geometry to Adjust
Component Placement*



*Servo Driven Gripper Turret
Accommodates Different Component Types*

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Integrated Robot Systems

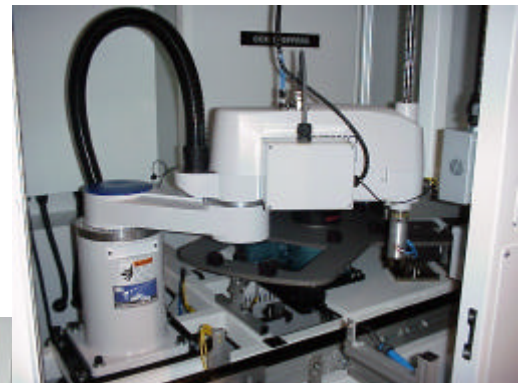
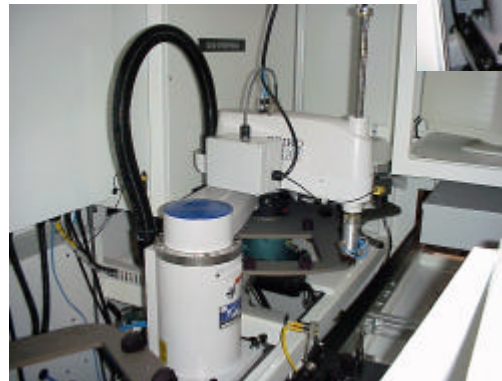
4-Axis

Seiko EL 650/320 PCB Thru-Hole Component Placer

- ≡≡ Seiko Robot
- ≡≡ On-board Robot Control PC
- ≡≡ Barcode PCB Type Detection
- ≡≡ Automatic Selection and Placement of Correct Components for PCB
- ≡≡ Integrated with Bosch TS/+ Conveyor
- ≡≡ Completely Integrated Operator Controls



*High Accuracy and
Repeatability required to
Accommodate Thru-hole
Mounting*



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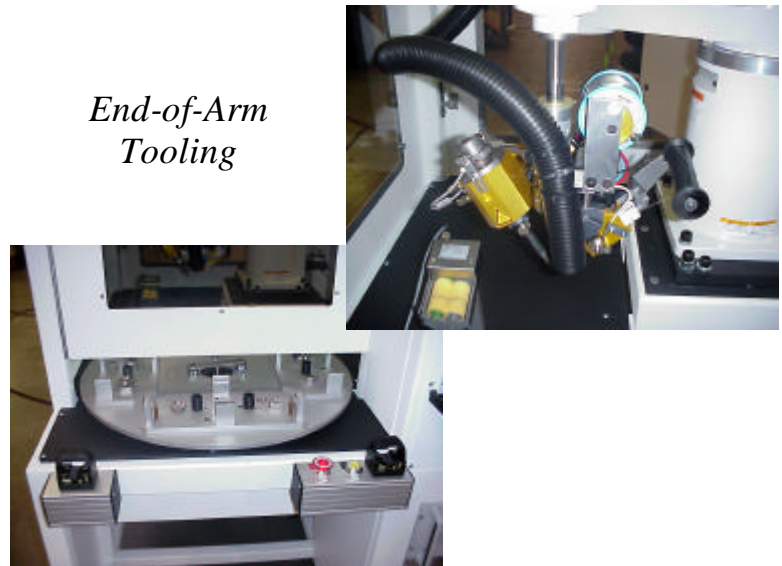
Integrated Robot Systems

4-Axis Epson EL 650/320 Soldering Application

- ≡≡ Epson Robot
- ≡≡ On-board Robot Control PC
- ≡≡ Completely Integrated Operator Controls
- ≡≡ Fume Collection System



*End-of-Arm
Tooling*



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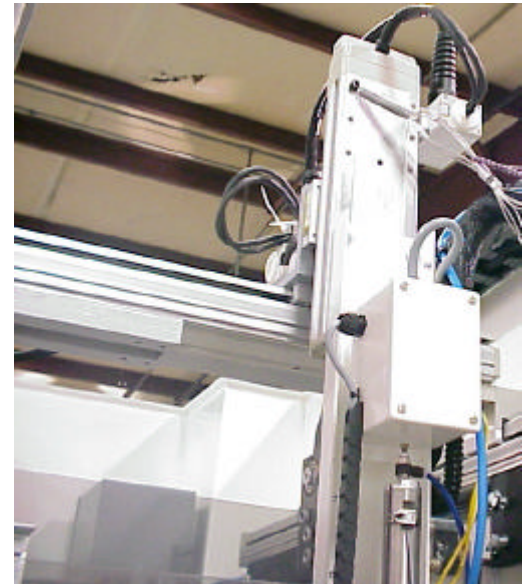
Integrated Robot Systems

3-Axis Industrial Actuators Hot Melt Adhesive Application

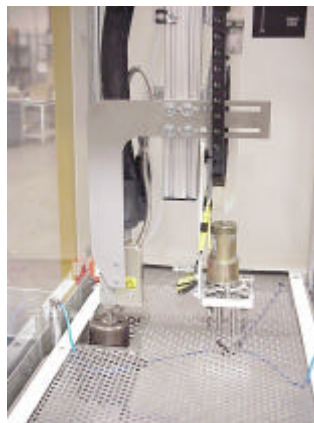
- ≡≡ 2 Bays
- ≡≡ Shared IAI Cartesian Robot
- ≡≡ Allen Bradley SLC 5/04 PLC
- ≡≡ Allen Bradley PV600 Touchscreen
- ≡≡ Safety Doors and Light Curtains
- ≡≡ Completely Integrated Operator Controls



*2 Bays
Sharing Robot,
Alternate Loading*



*End-of-Arm Tooling Includes
Hot Melt Applicator Head
and Foam Block Gripper*



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