

Flexible Feeder Solution

Bin Picking - Flexible Feeder

Basic Description

FANUC Robotics' new Flexible Feeder is the next generation in part feeding technology. Built on our industry-leading bin picking algorithm, our Flexfeeder overcomes the high cost of tradition parts feeding. Combining the power of FANUC's intelligent robot control with our integral vision we are able to offer a highly reliable low cost flexible feeding solution.

Technical Description

FANUC Robotics' intelligent robots and field-proven software give us the unique ability to deliver these leading-edge feeders. Our Flexible Feeders are able to find and pick randomly placed parts in a bin. The feeders come in a variety of sizes and are able to handle a wide range of parts. Bins are typically sized to hold enough parts for several hours of operation.

FANUC Robotics' Bin Picking - Flexible Feeder, the right solution for -

Feeding parts in automated workcells:

- Loading machine tools as part of unattended operations.
- Feeding parts at the beginning of a line.
- Picking parts from boxes/bins as part of an assembly operation.

Benefits

- Predefined solutions reduce delivery time and risk.
- Scalable solutions to meet your specific needs.
- Tooling setup for a family of parts.
- Add new parts using our user-friendly iRVision product.
- Automatic part changeovers.
- Easily add part inspection and error proofing with the supplied 2D camera.
- Re-grip station to optionally reorient parts for proper loading.



Features

- Vision guided picking of randomly placed parts.
- High feed rates with automated recoveries.
- Standard bin avoidance software.
- Several hours of unattended operation.
- Error proofing capability.

Mechanical:

- Three standard solutions: LRMate, M-20 and R-2000 robots.
- Standard field-proven end of arm tools for typical part shapes.
- Standard bins for most part sizes.
- Integral camera and lighting stands reduce integration costs.
- Part orientation/inspection station to increase system flexibility as needed.

Controls:

Flexible Feeders are designed to take advantage of the power of FANUC's R-30iA Controller. This powerful platform is used to control all aspects of the cell including:

- Locate and identify parts
- Motion Control
- Machine interface
- Operator interface
- Error recovery

Software:

Our feeders are built around FANUC's time-tested software. All feeders come with HandlingTool and the following robot software options.

- iRVision Bin Picking
- iRVision 3DL
- iRVision 2DV
- iRVision Error Proofing
- iRVision Online Help
- Collision Guard
- Collision Skip
- Constant Path
- Cycle Time Priority
- DCS Pos./Speed check

Robot Models

We support three robot models for our Flexible Feeders. They are:

- LRMate
- M-20
- R-2000

Which model is right for each application is determined by several factors.

- Part size and weight
- Storage volume for incoming parts
- Workcell layout

With these options, there is a Flexible Feeder that is right for your application.

For customized solutions, additional robot models are available.

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Feeder Configurations

Reach	Robot Model	Max Part Weight (kg)	Pick Envelope (Bin Size)		
			Length (m)	Width (m)	Height (m)
Small	LR Mate [®] 200i C Series	1	0.3	0.3	0.3
Medium	M-20i A Series	10	1	1	1
Large	R-2000i B [™] Series	30	1	2	1

Additional part sizes can be evaluated at customers' request.

Gripping Method	Orientation	Typical Tool	Optional Tool
Outside Diameter	On Axis (from end)	3-Jaw gripper	2 or 4-Jaw gripper, Collet
Outside Diameter	Off Axis (90° to axis)	2-Jaw gripper	Magnet, Vacuum
Inside Diameter	On Axis	3-Jaw gripper	2 or 4-Jaw gripper, Mandrel
Opposing Surfaces	n/a	2-Jaw gripper	3-Jaw gripper
Flat or slightly-curved Surface	n/a	Vacuum Cup(s)	Magnet

Bin Configuration	
Customer supplied bin (for simpler parts)	ASG Shallow sloped bin (for difficult parts)

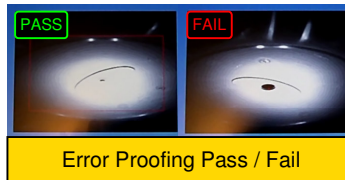
Optional Engineering Services
Examples: Workcell layout, Risk assessment, Full application programming, Installation support and Startup or complete system
<i>Please contact ASG Applications Engineering to configure your Flexible Feeder</i>

Included in Packaged Solution

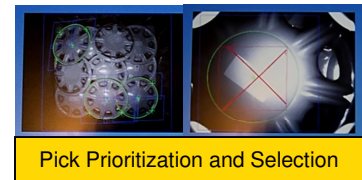
- FANUC LR Mate, M-20 or R-2000 Robot. (Customer selected)
- iRVision system with robot mounted 3DL sensor
- Two fix mounted 2D cameras with lighting and support boom
- Robot mounted end of arm tool.
- Cabling dress for robot arm. (3DL and EOAT)
- Plug-in cables for 2D cameras and lights.
- Application program (selection and picking part from bin for a well defined geometry part)
- Standard software packages for bin picking solution
- Assembly of all components
- Functionally tested and ready for system integration
- ROBOGUIDE[®] Basic Cell; configured with 3D model. (provided after order placement for workcell development)

Options Priced Separately

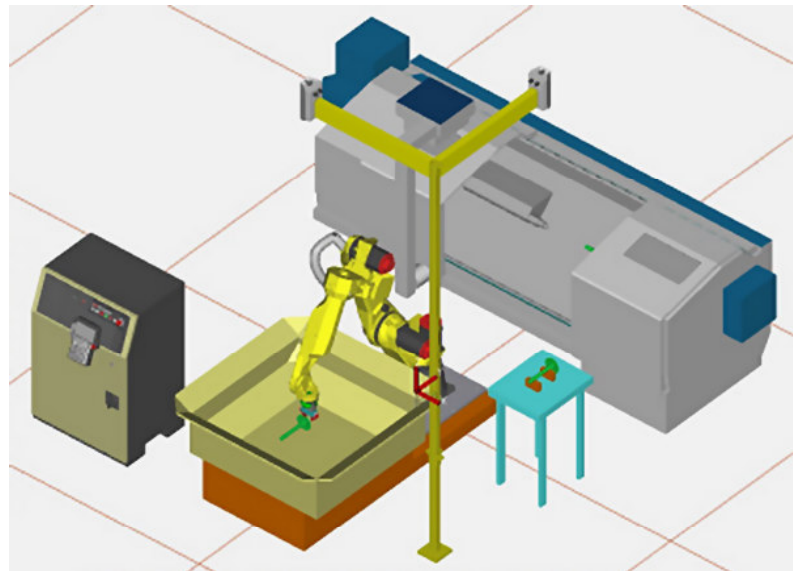
- Workcell Layouts
- ASG Shallow sloped bin (increases pickability)
- Full Application program (includes re-grips and placement to final position)
- Error proofing checks
- Risk Assessment
- Additional Work Cell peripherals
- Custom Application Software
- Integration and Startup Support
- ROBOGUIDE[®]-HandlingPRO[™]



Error Proofing Pass / Fail



Pick Prioritization and Selection



Intelligent Robot Solutions



FANUC Robotics America, Inc.
3900 W. Hamlin Road
Rochester Hills, MI 48309-3253
(248) 377-7000

Charlotte, NC
 (704) 596-5121

Toronto, Canada
 (905) 812-2300

Chicago, IL
 (847) 898-6000

Montréal, Canada
 (450) 492-9001

For sales or technical information, call:
1-800-iQ-ROBOT

Cincinnati, OH
 (513) 754-2400

Aguascalientes, Mexico
 52 (449) 922-8000

Los Angeles, CA
 (949) 595-2700

Sao Paulo, Brazil
 (55) (11) 3619-0599

marketing@fanucrobotics.com
fanucrobotics.com

Toledo, OH
 (419) 866-0788