



## **Total flexibility**

Intelligent bulk parts feeding  
for all robots and applications

Robot feeder systems and  
all-in-one solutions

# › The full range

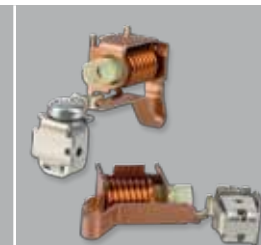
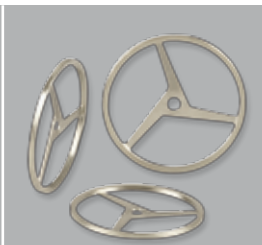
anyfeed™ – flexible feeders for parts of any shape and size



Switzerland-based flexfactory ag is a leading developer, manufacturer and supplier of flexible, programmable feeding systems for bulk material. The highly skilled and committed team at flexfactory aims to revolutionize feeding technology and supply cost-effective solutions. The unique technology offered by flexfactory brings a whole new dimension to automatic production systems. Parts are supplied with precision, throughput is high and product changeovers can be completed in the shortest of times. The end result is an unparalleled combination of maximum flexibility and outstanding availability and performance – all of which give flexfactory customers a decisive competitive edge.

## anyfeed™ parts supply systems

anyfeed™ is a range of programmable bulk parts feeders and vision-based solutions for parts of all shapes and sizes from 1 to 120 mm and is suitable for all robots and applications. All the models share the same functional principle, integrated controls with standardized communication, quick-change feed plates, an integrated bulk storage bin and a quick-empty mechanism for rapid product changeovers. You can find a detailed description of the functional principle behind anyfeed™ and the feedware™ CX vision solution specially developed by flexfactory on pages 4/5.



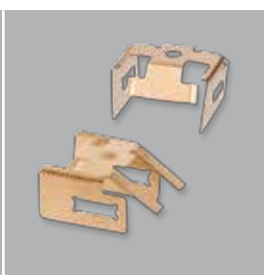


- › Innovative, highly flexible feeder technology for all robots
- › Maximum availability thanks to automatic error correction
- › Minimal changeover times when changing products
- › Automatic parts emptying at the touch of a button
- › Minimal footprint – one anyfeed™ replaces several conventional feeders
- › Exceptionally gentle parts handling
- › Standardized communication with all models
- › Simple servicing thanks to the use of identical servo-electric drives in all models

#### Application areas

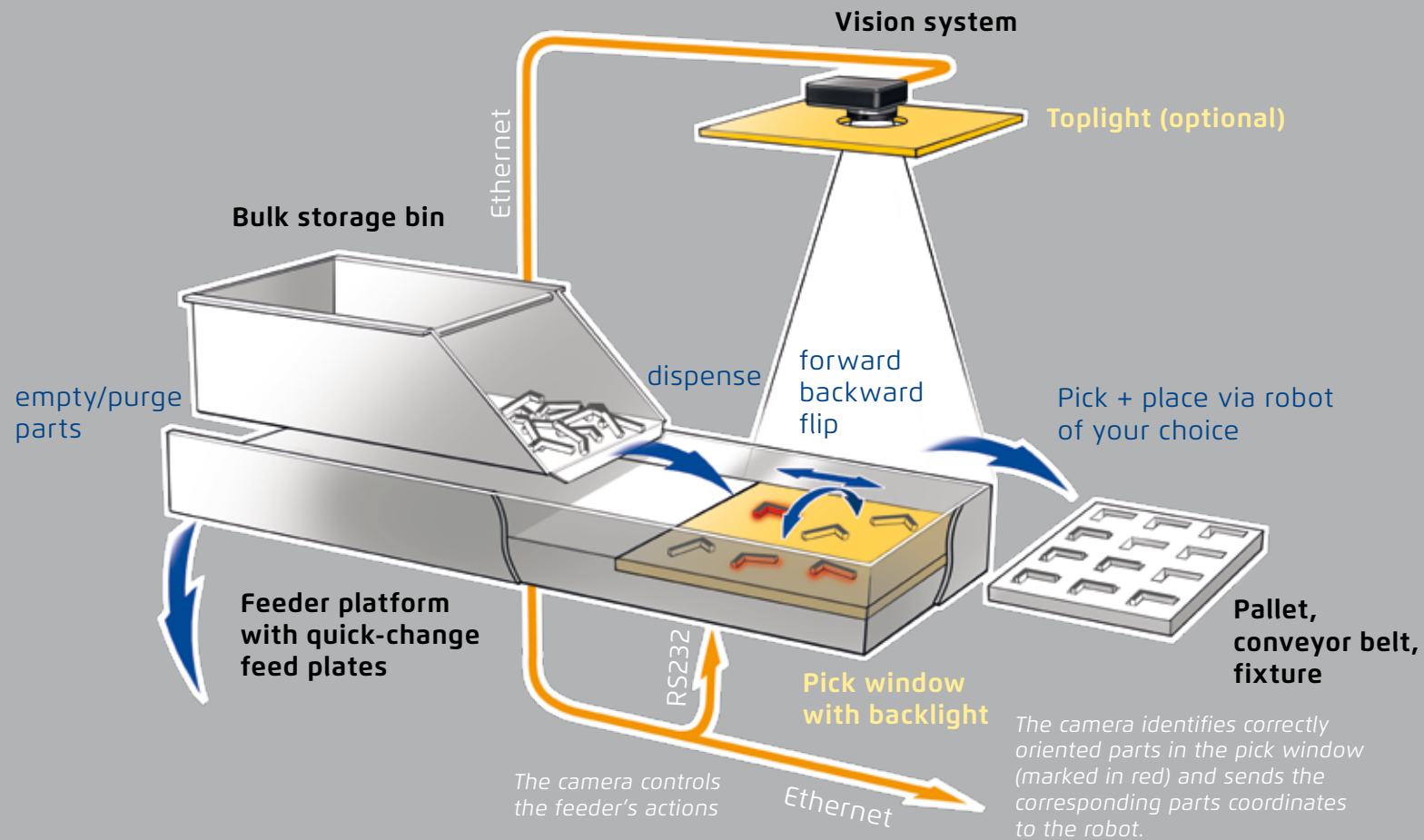
flexfactory feeding technology is used wherever small parts need to be supplied with flexibility, speed, and accuracy and where production systems are subject to continuous change, such as in the following sectors:

- › Automotive
- › Sport and leisure
- › IT and telecommunications
- › Jewelry and watches
- › Toiletries and cosmetics
- › Dental and medical technology
- › Electrical engineering



# ➤ Feeders that can see

Intelligent parts manipulation and recognition for any robot



Over 1'000 anyfeed™ units are being used worldwide with these robots:

- ABB
- DENSO
- Epson
- FANUC
- IAI Intelligent Actuators
- KUKA
- Mitsubishi
- Motoman
- Omron Adept Technology
- Precise Automation
- Stäubli
- Yamaha
- YASKAWA

## The basic principle

The bulk parts are dispensed from the bulk storage bin into the pick window of the feeder platform. The parts – both those in the bin and on the feeder platform – are moved forward/backward or flipped by the servo-controlled actions of the feeder surfaces. Only two parameters – the speed and duration of movement – need to be adjusted to customize the feeding action for various parts.

A vision system installed over the pick window analyzes the orientation and position of the randomly distributed parts and tells the feeder what action to take. An Ethernet connection is used to report the positions of “correctly” oriented parts to the robot, which picks the parts and places them in the desired locations for further processing.





**feedware™ CX software solution – seamlessly connects Cognex In-Sight, anyfeed™ and any robot**

It is the ideal and proven solution for turning any anyfeed™ model and any robot into a complete parts supply system – in next to no time and with the greatest of ease. The Cognex In-Sight camera installed above the window identifies correctly oriented parts and transfers the picking coordinates to the robot's control system.

feedware™ CX continuously monitors the parts in the pick window and sends action commands to the anyfeed™ telling it to make more parts available for the robot. feedware™ CX is also responsible for teaching the system to handle new parts, parameterizing feed characteristics, calibrating robot-to-vision coordinates, and defining pick-points and clear-grip zones.

flexfactory supplies the full package, including a Cognex In-Sight camera with feedware™ CX preloaded. The company also provides the appropriate lighting and optics and helps customers get the entire solution up and running.

**The benefits of feedware™ CX and Cognex In-Sight**

- Simple integration using tried-and-tested components
- Intuitive user interface
- Patmax, the leading object identification technology from Cognex, makes it simple to teach the system to recognize new parts
- Management of up to 250 parts
- All data is backed up via a connected PC
- No PC is required during run-time – only for setting up
- Remote support for teach-in and optimization of parts



# › The full spectrum

## anyfeed™ – the feeder range for all uses

### Designed for parts of all types

anyfeed™ uses a universal feeding principle that ensures feeding of a wide range of parts. Only one type of part is handled at a given time. One anyfeed™ with a vision system replaces several conventional custom-designed vibratory feeders. This eliminates expensive changeover times and frees up valuable production space for other uses. anyfeed™ is a solution that is ready for future needs, new or modified parts.

### Flexible and fast

When using fast robots, feed rates of up to 60 parts per minute can be achieved with anyfeed™ – without compromising on maximum flexibility. If two anyfeed™ systems are being used per robot, rates of up to 80 parts per minute can be achieved.

### Product changeovers couldn't be simpler

All anyfeed™ models feature an automatic empty/purge function. This is a crucial and valuable advantage for just-in-time production operations that involve frequent product changeovers and small batch sizes. There is no need to empty parts by hand and product changeovers are fast and inexpensive.

#### anyfeed™ TODAY

Maximum availability and performance combined with optimum flexibility.

#### anyfeed™ TOMORROW

Always ready for new parts and challenges.



\*\* Part size and weight depend on feed performance and, in critical cases, must be determined through testing.

#### anyfeed™ SXM50

#### anyfeed™ SXM100

Recommended part size*	15 mm	30 mm
Maximum part weight*	2 g	15 g
Bulk storage capacity	0.3 dm <sup>3</sup>	3 dm <sup>3</sup>
Pick window (width by length)	50 x 67 mm	100 x 134 mm
Pick window (area)	34 cm <sup>2</sup>	134 cm <sup>2</sup>
Permissible load inside pick window	100 g	500 g
Pick level above feeder installation surface	138 mm	171 mm
Feeder weight	7 kg	18 kg

### No downtime due to jammed parts

If the robot is unable to remove a part on its first attempt, a new feed cycle is initiated. The robot automatically repeats its gripping attempt until the part can be successfully supplied. This automatic error correction eliminates downtimes, maximizes availability and reduces operator interventions.

### No stress for parts

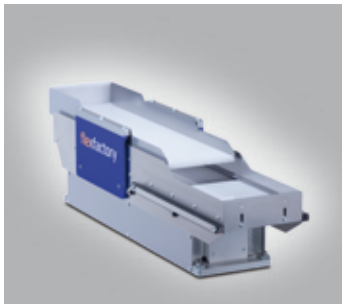
The bulk storage bin is only activated when more parts are needed in the pick window, otherwise the bulk parts are left completely stress-free. The parts in the pick window are picked quickly and there is no risk of them being left in ongoing recirculation. As a result, the system can be used to supply parts that are cosmetically or functionally fragile.

### Minimum footprint in production

All anyfeed™ devices feature a rectangular footprint, an integrated bulk storage bin and integral controls – the ideal combination for building elegant, space-saving solutions.

### Optimum feed characteristics

A wide selection of feed plates is available featuring different materials, colors, surface finishes and properties, including FDA-approved models and plates with anti-static properties. These plates can be used to optimize both the feed action and contrast conditions for image processing. Feed plates are changed by hand in a matter of seconds – no tools required.



#### anyfeed™ SXM140

45 mm

25 g

4 dm<sup>3</sup>

140 x 193 mm

270 cm<sup>2</sup>

500 g

160 mm

22 kg

#### anyfeed™ SX 160

50 mm

60 g

10 dm<sup>3</sup>

160 x 214 mm

342 cm<sup>2</sup>

1500 g

241 mm

48 kg

#### anyfeed™ SX240

75 mm

60 g

10 dm<sup>3</sup>

240 x 320 mm

768 cm<sup>2</sup>

1500 g

241 mm

50 kg

#### anyfeed™ SX340

110 mm

80 g

15 dm<sup>3</sup>

340 x 430 mm

1462 cm<sup>2</sup>

1500 g

255 mm

55 kg

# › The turnkey package

feedbot™ – all-in-one feeder cells for any application



## Scope of supply

- › Machine enclosure with integrated control system and operating station
- › High-speed 4-axis gantry robot with integrated gripper changer
- › Cognex In-Sight or PC-based vision system
- › Multiple anyfeed™ units (number as appropriate to size)
- › Optics and lighting technology
- › Application-specific multipurpose grippers
- › Additional inspection cameras
- › Servo turn station for parts manipulation

## feedbot™ – the fastest way to ramp-up your production

flexfactory has combined a robot, feeder, vision system, gripper technology and operating software to develop the highly flexible and user-friendly feedbot™ automation system. Thanks to this all-in-one solution, users can set up new parts without having to carry out programming work.

The standardized feedware™ hardware and software platform enables users to continuously integrate their experience and new functions for future applications. Usually, programming is only required when customer-specific requirements can't be met using the standard functions of the feedbot™.

feedbot™ is available as a standalone solution or can be integrated into production lines and comes in a range of sizes and designs. What's more, it supports all the feeders in the anyfeed™ range. flexfactory supplies turnkey feedbot™ solutions that are adapted to the specific tasks involved, including on-site startup.



# feedbot™ – all-in-one



- › Feed rates of up to 60 parts per minute
- › Up to four different parts can be fed simultaneously
- › Integrated gripper change mechanism
- › Additional cameras for refining the part position on the fly
- › Standard design as table-top model – available with optional base frame
- › Automatic emptying of feeder systems during product changeover
- › Graphical user interface with access rights and functions for statistics and cycle time optimization
- › Short delivery times, calculable costs

## Applications

- › Placement of parts on workpiece carriers, conveyors and fixtures
- › Loading and unloading component testers
- › Palletizing, packaging, counting parts
- › Loading process machinery
- › Simple assembly tasks

## Conditions

- › Bulk parts ranging from 1 to 120 mm
- › Suitable for applications in dry and clean surroundings
- › Not suitable for applications involving unpackaged foods
- › Not suitable for use in environments with explosion hazards

# › The full engagement

Application support from A to Z



## Typical feedlab testing program

- › Evaluation of ideal anyfeed™ model and feed plate
- › Cycle time estimation
- › Best recognition method for parts
- › Part-grasping technique
- › Pick & place testing with feedbot™

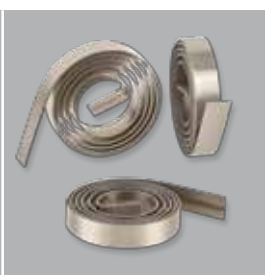
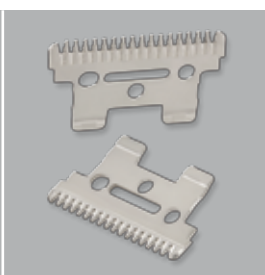
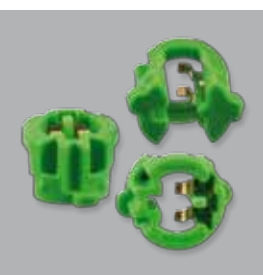
## Basis for decisions

- › Test report
- › Recommended equipment configuration
- › Commercial quotation
- › Next steps

## Putting parts under the microscope – for well-founded decisions

Application engineers in the feedlab at flexfactory subject critical parts to intensive testing to collect valuable data for making the right decisions and to enable new findings to be fed into innovative solutions.

As a customer, you want to raise quality standards in production while lowering costs. You expect short cycle times, high accuracy and complete reliability. flexfactory offers you all of that.





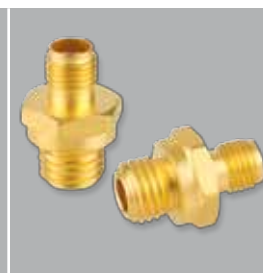
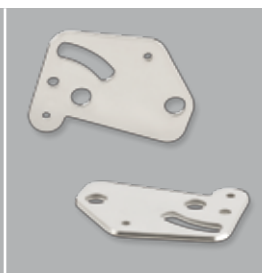
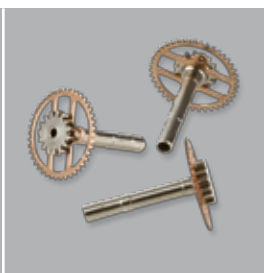
### First-class application support

flexfactory puts flexible feeding technology to work in your plant. Set us a challenge with new parts and requirements and send us your parts for free testing.

Our products and services are the results of our workforce and its continuous efforts to improve and innovate. Countless parts from a vast range of industrial sectors give us the opportunity to train day in, day out for your next challenge.

### Services

- › Feasibility tests for critical parts
- › Customer project support
- › Teach-in of new parts
- › Cycle-time optimization
- › Support for starting up new systems
- › On-site training for your employees



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