

**THE PARTS  
CHANGE.**

THE  
FLEXFEEDER  
REMAINS THE  
SAME.





Innovation flexfeeder X

# ONE DECISION, EVERY CHOICE.

flexfactory sets new standards for flexible feeder systems - with the flexfeeder X series. Control, vision system and simple connection to any robot make this feeder system an all-rounder. Whether camera positioning, choice of lens, illumination method, part feed - everything has been thought of. And this applies not only to operation, but already to the planning phase.

CAD models of all flexfeeder X configurations are available for download at [www.flexfactory.com](http://www.flexfactory.com). In addition, flexfactory provides quick and qualified answers via parts tests, tailored to the customers' needs. This makes costs and time factors transparent and calculable. The advantage: less work and fewer risks for machine builders. In return, more options for feeding and more security for a sustainably correct decision.



› What belongs together should come together. Based on this conviction and our experience, we have developed a compact feeder that can feed parts of any kind. ‹

CEO – Felix Büchi

Functional principle

# FLEXIBLE FEEDERS. THE COMPLETE SOLUTION.

- + New feedware XOS operating system with built-in touch-screen HMI
- + Machine vision and lighting integrated
- + Fully automatic emptying of feeder
- + Fast rejecting of unusable parts
- + New and faster parts manipulation actions
- + Remote control via HTML web interface



## 1 Central Feeder Unit

The central feeder unit houses power distribution, safety circuits, system controller running feedware XOS, 4 Ethernet ports to communicate with external devices, digital I/O, and light controls. The built-in bulk return bin below the bulk storage bin is used for capturing rejected parts or for emptying the feeder. The central feeder unit furthermore includes the bulk storage and dispenser unit. See position 6 for additional information.

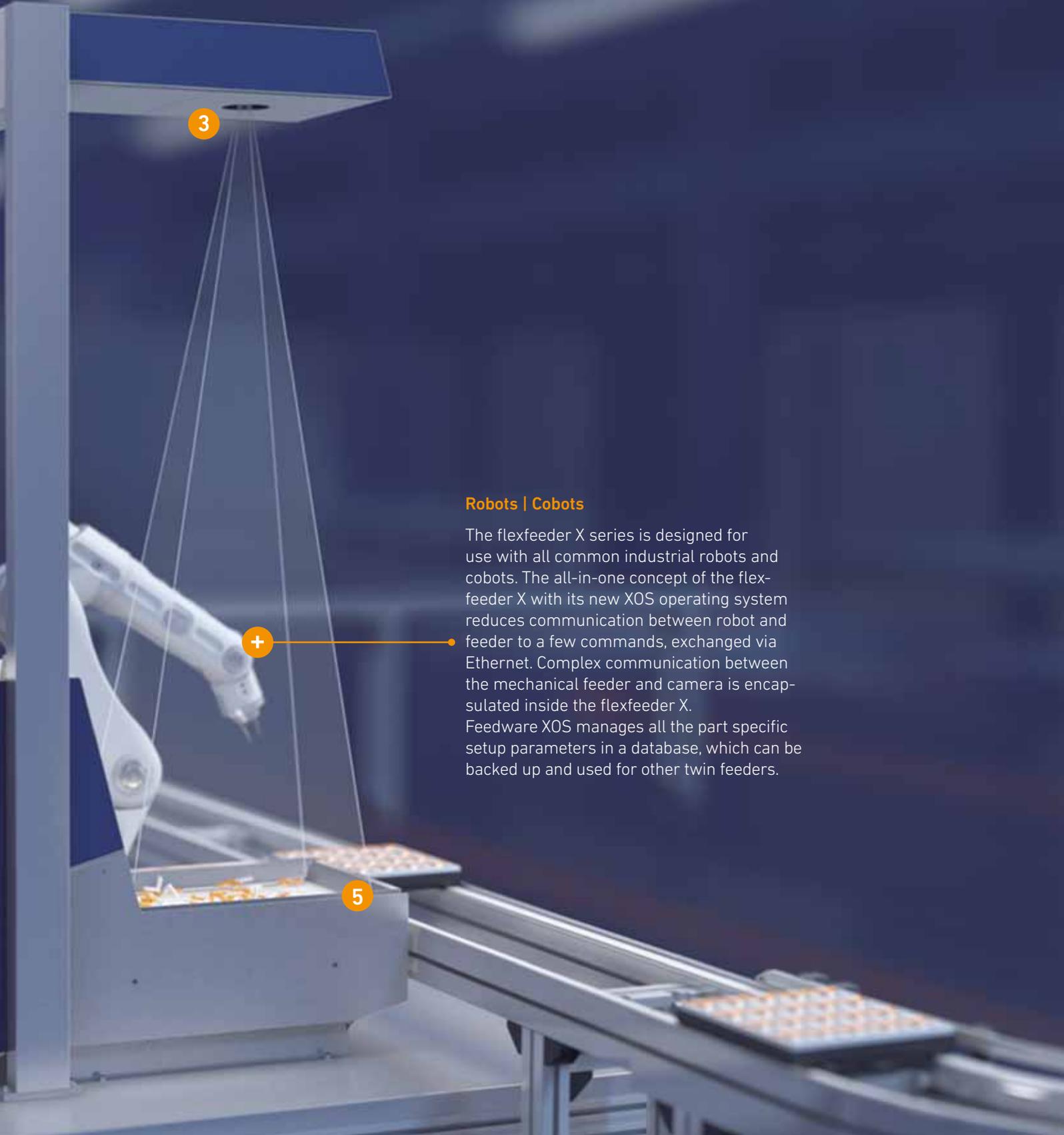
## 2 Control Unit | feedware XOS

Intelligent algorithms permanently analyze the distribution and orientation of the parts on the feeder. They activate optimal movements to make the parts visible to the camera and tangible to the robot. In addition, the feedware XOS controls the setup and optimization of the parts and the management of the parts' database. This data can be transferred to twin feeders via network or USB key.

## 3 Camera Unit | Camera Tower

The smart camera sits at the top of the camera tower overseeing the situation on the shaker and directing the shaker what action to take next. Part locations are transmitted via Ethernet to a robot, which picks up the parts. An optional, flashable LED top light, attached to the tower, is used to identify parts with surface features that cannot be seen with the built in backlight. A vibration damper built into the camera tower eliminates disturbing vibrations and ensures precise part localization.





### Robots | Cobots

The flexfeeder X series is designed for use with all common industrial robots and cobots. The all-in-one concept of the flexfeeder X with its new XOS operating system reduces communication between robot and feeder to a few commands, exchanged via Ethernet. Complex communication between the mechanical feeder and camera is encapsulated inside the flexfeeder X. Feedware XOS manages all the part specific setup parameters in a database, which can be backed up and used for other twin feeders.

#### 4 Communication via Ethernet

Feeder and robot communicate via Ethernet TCP/IP on the basis of parsed strings. Thanks to the all-in-one approach of the flexfeeder X, communication is reduced to a minimum. Two modes of operation are supported: robot-vision calibration and pick+place. In pick+place mode, the robot selects a part from the flexfeeder's parts database and from then on, the feeder fully autonomously presents parts on the shaker in the desired orientation the robot can pick up.

#### 5 Shaker

The shaker is the core piece of the flexfeeder X. With sophisticated kinematics, the parts are distributed, turned, condensed, or spread out on the shaker at lightning speed, manipulating them to the desired poses for being picked up by the robot. Different materials, colors, and surface textures of the feed plate are available for optimizing the cycle time and recognition. A built-in LED-backlight illuminates the parts from below. Thanks to the new kinematics, rubber parts can also be conveyed as easily as metal or hard plastic parts.

#### 6 Bulk storage bin

The parts-dispenser ejects a controlled amount of parts onto the shaker. The bulk parts are stored in the bulk bin, which holds enough parts to achieve sufficient operating autonomy. The bulk parts rest stress-free until the camera requests more parts for the shaker. The amount of parts being dispensed, is programmable and is stored in the parts' database. In case of a part change-over or for cleaning purposes, remaining parts in the dispenser and on the shaker are all automatically moved into the bulk return bin.

Products

# SUCCESS IN SERIES.

## FLEXFEEDER X.



**FLEXFEEDER X185**

|                                  |                |
|----------------------------------|----------------|
| Part size*                       | 0.2–60 mm      |
| Part weight*                     | 80 g           |
| Bulk storage capacity            | 6 l, 15 kg     |
| Maximum load in the working area | 1500 g         |
| Pick Window [area]               | 185 x 247 [mm] |
| Diagonal pick range              | 308 mm         |
| Part support height              | 226 mm         |
| Feeder weight (with Tower)       | 54 kg          |

**FLEXFEEDER X250**

|                                  |                |
|----------------------------------|----------------|
| Part size*                       | 0.2–90 mm      |
| Part weight*                     | 80 g           |
| Bulk storage capacity            | 15 l, 15 kg    |
| Maximum load in the working area | 1500 g         |
| Pick Window [area]               | 250 x 330 [mm] |
| Diagonal pick range              | 414 mm         |
| Part support height              | 225 mm         |
| Feeder weight (with Tower)       | 67 kg          |

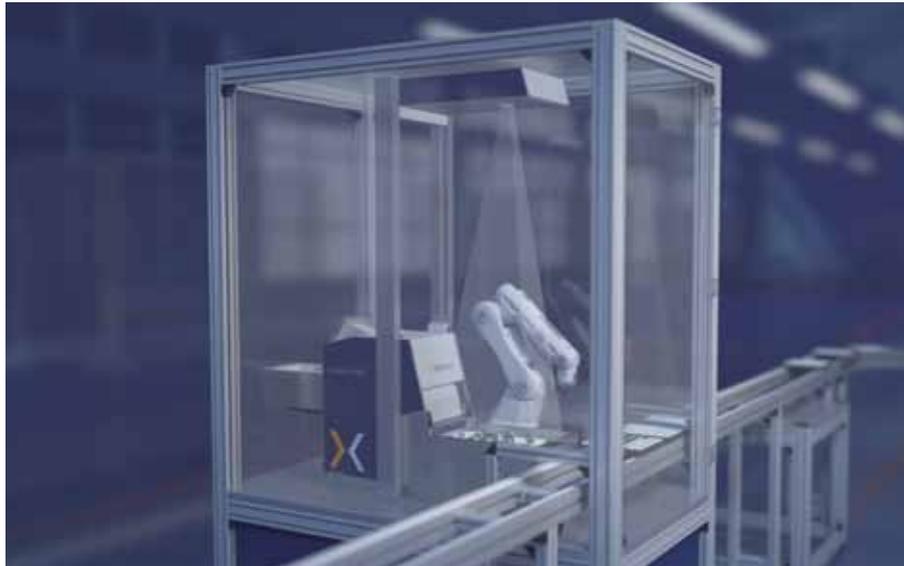
**FLEXFEEDER X350**

|                                  |                |
|----------------------------------|----------------|
| Part size*                       | 0.2–180 mm     |
| Part weight*                     | 80 g           |
| Bulk storage capacity            | 23 l, 18 kg    |
| Maximum load in the working area | 2000 g         |
| Pick Window [area]               | 350 x 495 [mm] |
| Diagonal pick range              | 606 mm         |
| Part support height              | 223 mm         |
| Feeder weight (with Tower)       | 82 kg          |

|                     |  |
|---------------------|--|
| Feed plates         | Extensive standard range of plates: material, color, surface texture   Application specific plates |
| Camera options      | High performance cameras, 2 or 5 megapixel   |
| LED lighting        | Backlight   Toplight   Light colors: white, red, infrared   Flash mode or continuous               |
| Camera installation | Tower with camera module (shown here)   Camera module   Direct mounting                            |

\*Guide value, depending on part geometry and required performance

[Detailed CAD models and dimension drawings: [www.flexfactory.com](http://www.flexfactory.com)]



### BONUS POINTS:

- + On request completely set up and ready to run for your individual part selection
- + Integrated Touch-HMI for quick and convenient operation at the device
- + Innovative, highly flexible and versatile bulk parts feeding technology for all robots and parts
- + Rapidly deployable and easy to use thanks to all-in-one design
- + High intensity, uniform, and flash-able LED backlights
- + Handles parts with major feature dimensions from 0.2 to 180 mm
- + Rapid product change-over thanks to fully automatic discharge
- + Automatic rejection of undesired parts eliminates manual
- + Extremely robust and durable industrial design with servo-electric drives.
- + Uniform operating system for entire flexfeeder X-Series.
- + Exchange of parts data among flexfeeder X twin
- + Shaker dynamics are practically independent from the parts load on the shaker.
- + Polyurethane-coated feed plates dramatically reduce noise emissions when feeding heavy metal parts



ONE FEEDER,  
ALL PARTS



MINIMUM  
SPACE  
REQUIREMENT



GENTLE ON  
YOUR PARTS



EASY  
COBOTS



SIMPLE  
OPERATION



READY  
TO RUN



COMPLETE  
UNIT

Application areas

# FROM ADAPTER TO ZINC CLIP. FOR QUICK PART CHANGES.

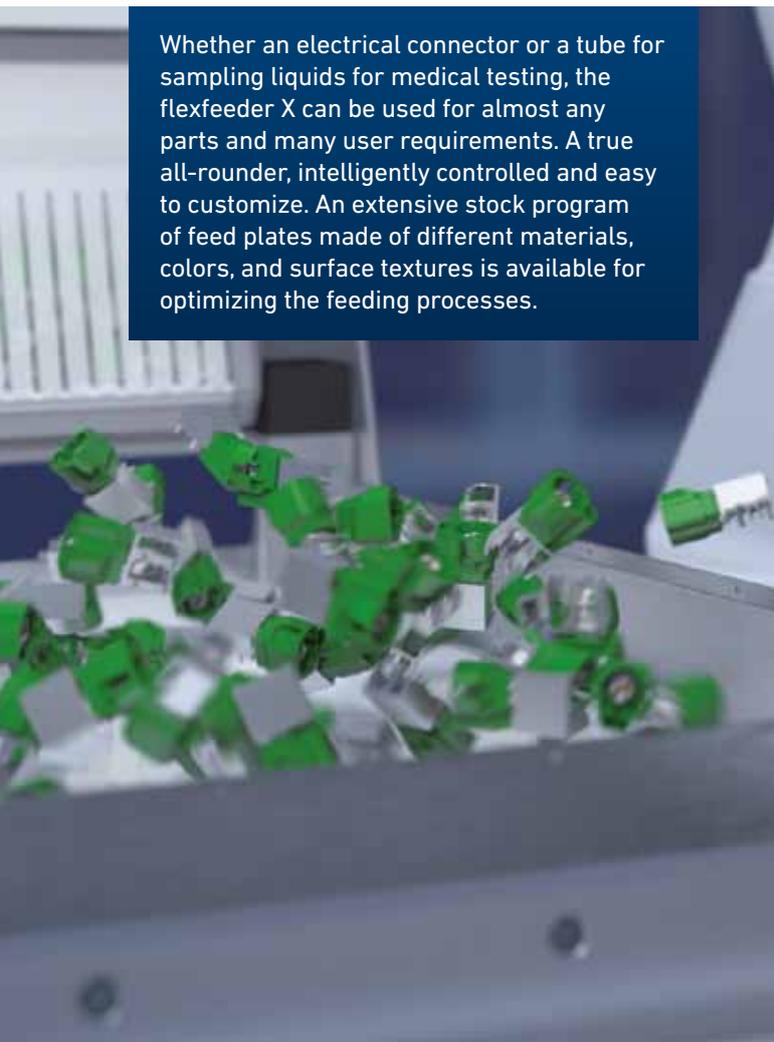
UNIVERSAL, ECONOMICAL AND REUSABLE.

The new flexfeeder X. A decision for the future. The innovative feeding system offers the greatest possible flexibility for all types of bulk parts. It is used wherever small parts have to be supplied precisely and flexibly. Companies in many industries benefit from this, such as:

- + Electrical technology
- + Automotive industry
- + Medical technology
- + Jewelry and watch industry
- + Personal care and cosmetic industry
- + Consumer goods and packaging industry



Whether an electrical connector or a tube for sampling liquids for medical testing, the flexfeeder X can be used for almost any parts and many user requirements. A true all-rounder, intelligently controlled and easy to customize. An extensive stock program of feed plates made of different materials, colors, and surface textures is available for optimizing the feeding processes.



**Clean room class ISO7**  
**X185/250/350 MED**  
Surfaces with parts contact  
are FDA compatible



**X185/250/350 ESD**  
for applications in  
electrostatic environments

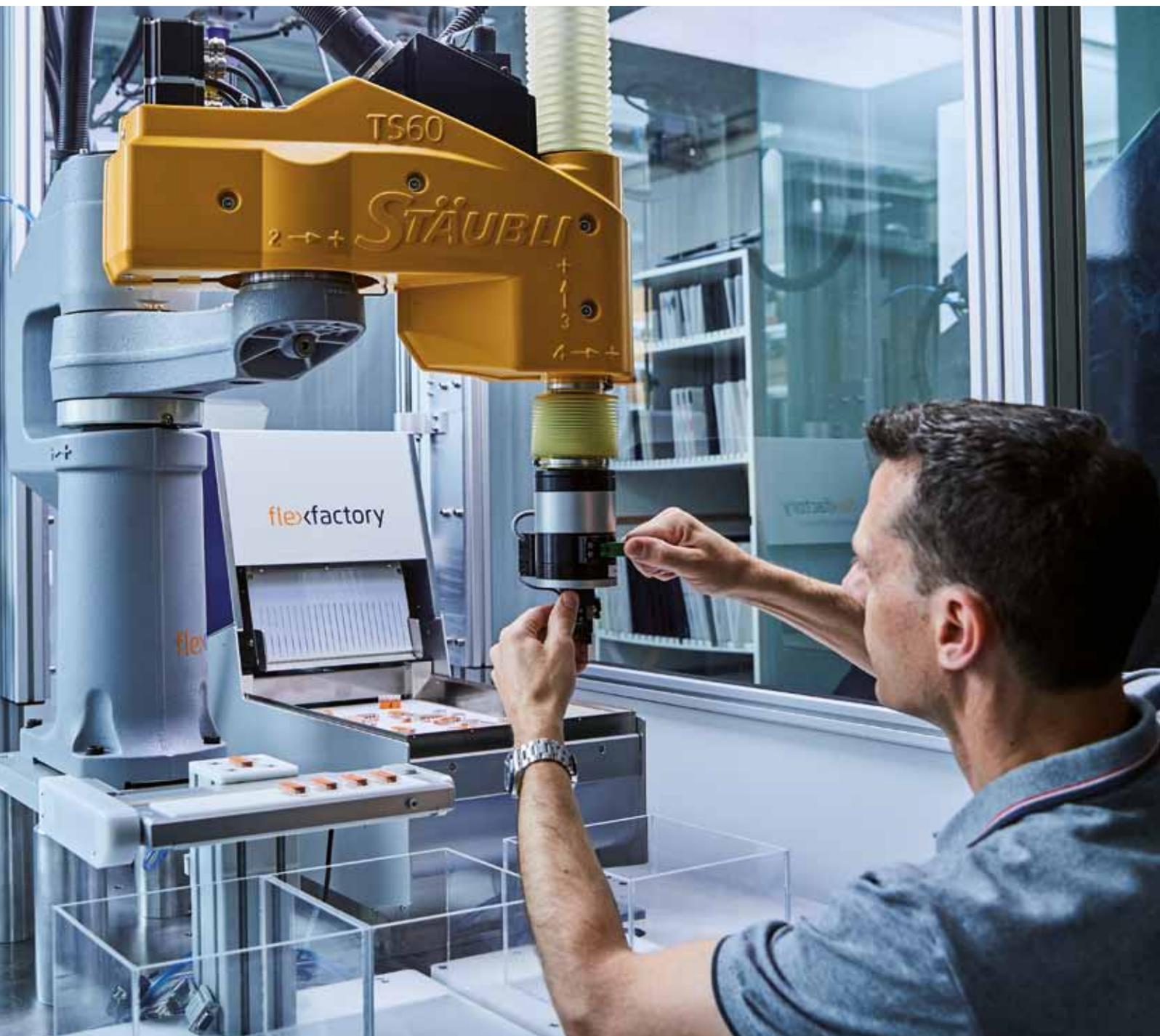
Robots/Cobots

# DREAM TEAM WITHOUT LIMITS.

Flexible feeding systems and robots are made for each other: Without additional protective measures, the flexfeeder X can be used in conjunction with cobots and/or humans. More than 5000 flexfactory feeding systems with over 20 robot brands are currently in use worldwide - and the number is growing every day:

- |                             |                      |
|-----------------------------|----------------------|
| + ABB                       | + DENSO              |
| + Epson                     | + FANUC              |
| + IAI Intelligent Actuators | + KUKA               |
| + Mitsubishi                | + Precise Automation |
| + Stäubli                   | + Universal Robots   |
| + Yamaha                    | + YASKAWA            |





Software

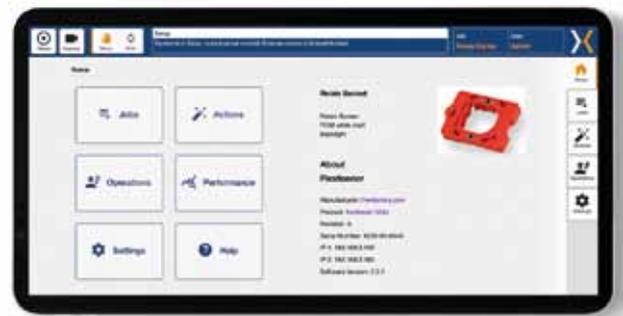
# FEEDWARE XOS. FLEXIBILITY HAS A SYSTEM.





## FEEDWARE XOS. COMMON USER INTERFACE FOR ALL OUR FEEDERS.

Feedware XOS is an integral part of all flexfeeder X devices and is continuously extended with new functionality. The hardware platform is a powerful single board computer running a LINUX operating system.



**Feedware XOS turns the three subsystems feeder, smart camera and robot, into an easy-to-use overall solution:**

- + Web user interface
- + Robot-to-vision calibration
- + Parts/Jobs database management
- + Teach-in new parts to the camera
- + Communication with the robot
- + Performance optimization tools
- + Maintenance functions
- + User help

Test Center

# CHECK PARTS. GIVE SECURITY.

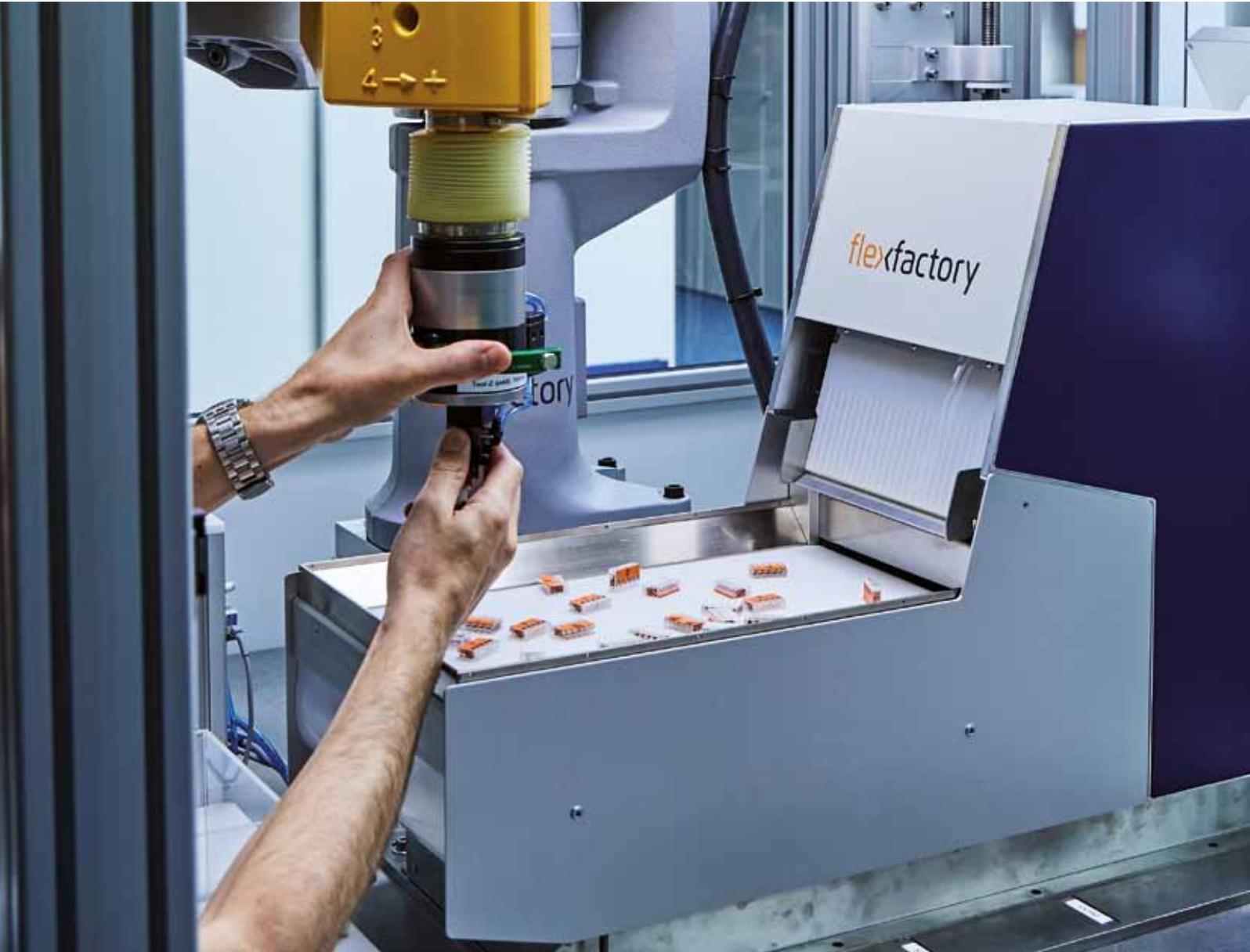
As a systems integrator, you want to know exactly what you can expect from a flexible parts feeding system before placing an order. In our test centers our application engineers carry out pick & place tests with a robot and the feeder, lighting, feed plate, part recognition, and feeder actions setup that works best for your parts. The test report comprises of a written report and videos, documenting the test results and system specifications. All you need for solid planing.

## flexfeeder

TRAINING | TEST | SUPPORT

flexfeeder GmbH | a division of flexfactory ag





Trainings

# CRASH COURSE. BE READY FOR THE FUTURE.



We make our customers fit for the flexfeeder and experts in flexible feeding. So that the potential of the system is optimally utilized and working with the new feeding system is a pleasure in every respect.



## FLEXFEEDER X TRAINING – THE COURSE FOCUSES

Become a flexfeeder X user in 1.5 days:

- + Overview of the feeder functions
- + Operation of the feeder
- + Hardware structure, terms, conventions
- + Setting up feeder, camera, lighting
- + Testing and optimizing settings
- + Pick+Place operation with the robot
- + Feeder/vision robot calibration
- + Robot-feeder communication
- + Conveyor plate selection
- + Important topics: Lighting and gripping technology
- + Safety engineering
- + Creating backups
- + Troubleshooting and maintenance

# flexfeeder

TRAINING | TEST | SUPPORT

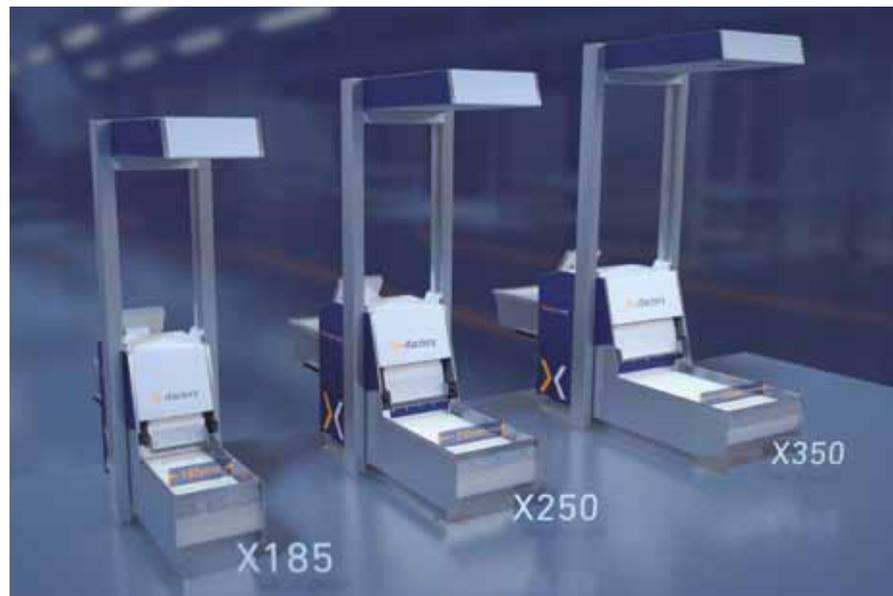
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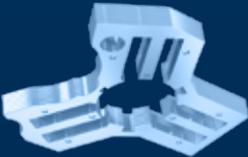
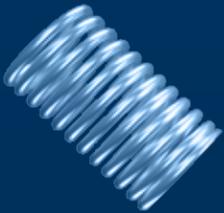
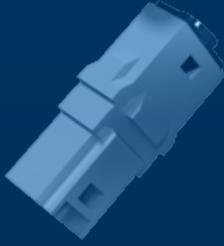
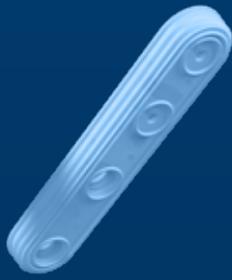
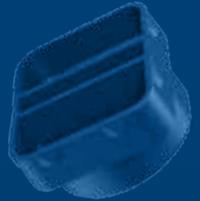
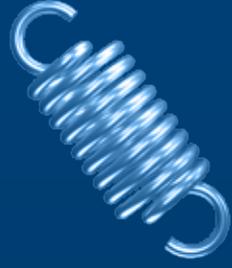
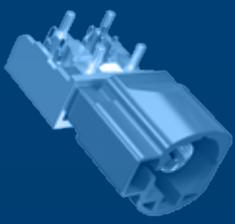
## FLEXFACTORY, THE FUTURE OF FLEXIBLE FEEDING TECHNOLOGY.

Felix Büchi founded the flexfactory in 1999. The company quickly became a pioneer in the field of flexible feeding and developed its own patents. To this day, this innovative spirit is the driving force behind the development of leading edge products, which are manufactured in Switzerland and sold worldwide.

Our team in Dietikon and at our partners in Europe are there for you to make your feeding more and more flexible, sustainable and faster.  
Call us or write to us.

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[www.flexfactory.com](http://www.flexfactory.com)

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feeding success.

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