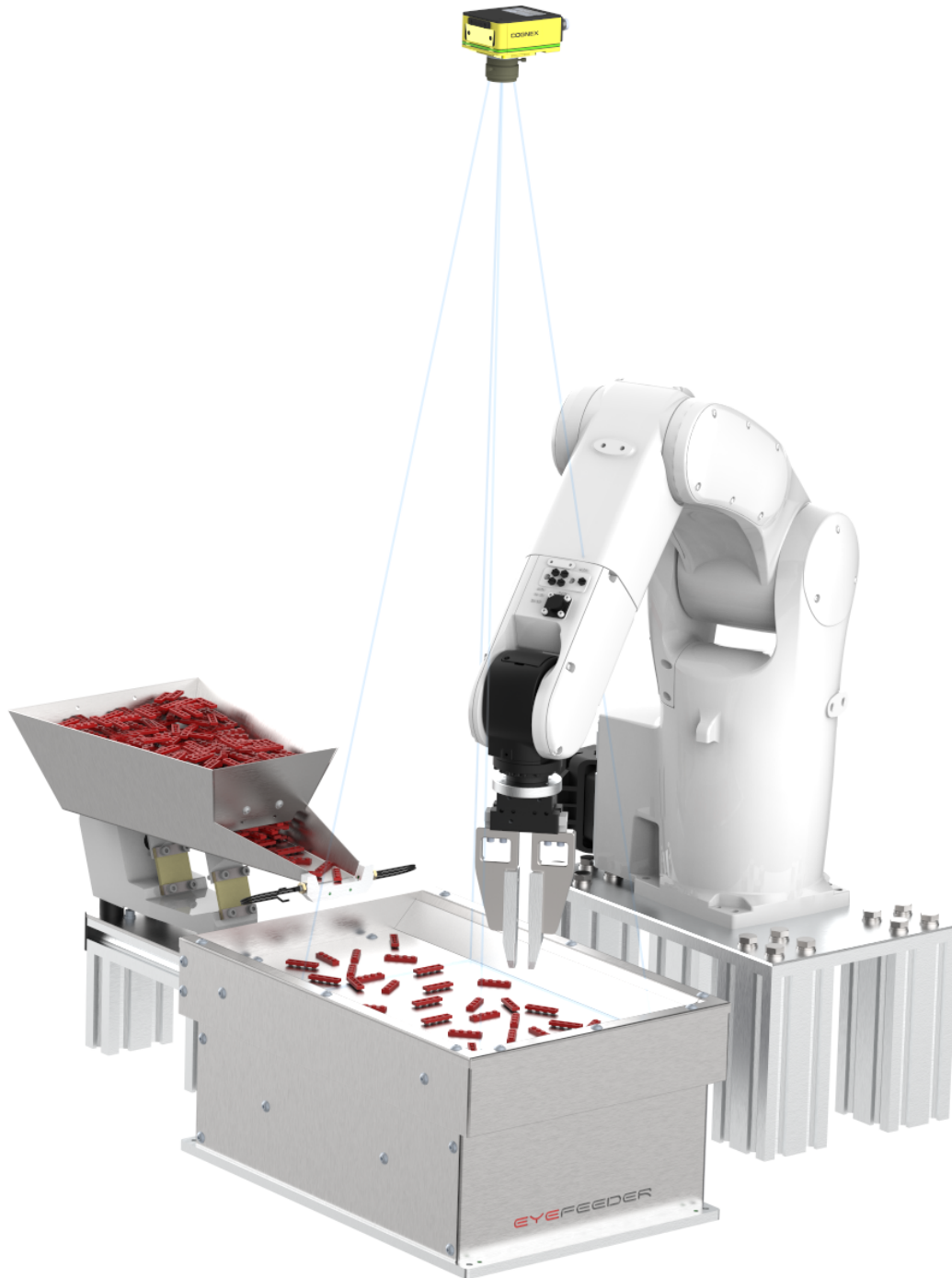


PRODUCT OVERVIEW



CONCEPT

THE EYEFEEEDER® BASIC CONCEPT:

An EYEFEEEDER®-based machine application offers an all-in-one, flexible solution for part feeding and handling.

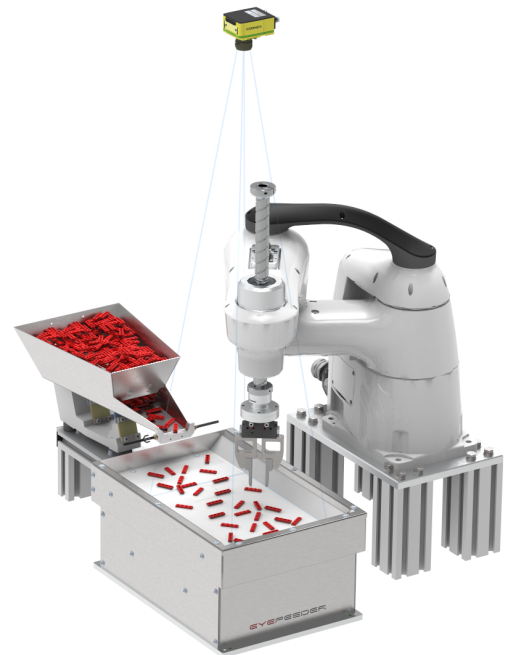
Key Features:

- The EYEFEEEDER® is a patented, flexible feeder system.
- It uses a conveyor belt or hard plastic tray as the base for moving products.
- Products are fed into the EYEFEEEDER® from a lift conveyor or vibrating bulk feeder.
- The EYEFEEEDER® shaking system spreads or orients products for vision detection.
- The vision system detects products and sends coordinates to robot for pick and place.
- The product supply is seamlessly integrated into the EYEFEEEDER® software and can be adjusted through the DENSO robot controller.

The EYEFEEEDER® comes in various sizes and technologies and can include a backlight for better visibility.

Selecting the Ideal EYEFEEEDER® System:

Select the right EYEFEEEDER® size, robot type, vision camera, and accessories to suit your application.



Basic example of a complete EYEFEEEDER® concept application

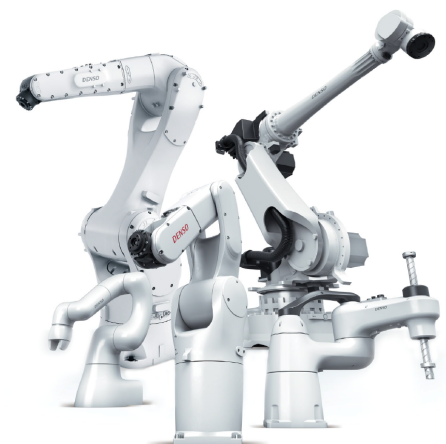
EYEFEEEDER® CONCEPT FLOW:

1. **Part Delivery:** The bulk feeder delivers parts to the EYEFEEEDER® unit.
2. **Positioning:** The EYEFEEEDER® unit forwards parts into the vision detection area.
3. **Flipping and Separation:** The EYEFEEEDER® unit flips and separates parts for accurate detection.
4. **Vision Detection:** The vision system detects the parts on the EYEFEEEDER® surface.
5. **Robot Adjustment:** EYEFEEEDER® software adjusts the robot's movements based on real-time data.
6. **Part Picking:** The DENSO robot picks a part.
7. **Placement:** The robot places the part at the desired location.
8. **Outcome:** The system reduces manual labor, enhances accuracy, and increases throughput.

DENSO ROBOT:

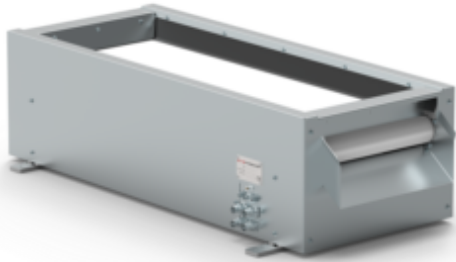
A wide range of DENSO robots:

- 4- and 6-axis robots with payloads from 3 to 40kg and reaches from 350 to 2503mm.
- The full range can be used in combination with the EYEFEEEDER®.
- Simple positioning is possible with a 4-axis or direct assembly with a 6-axis robot.
- Additional HMI's, PLC's or controllers are unnecessary.
- The PLC function in the DENSO RC8A robot controller allows direct operation of the EYEFEEEDER®, vision system or other components via its Teaching Pendant.



DENSO robot models HS / HSR / VS / VM / Cobotta

FLEXIBLE FEEDERS



Example of an EYEFEEEDER® EF1000

EYEFEEEDER® models EF1000 / EF1200 / EF1400:

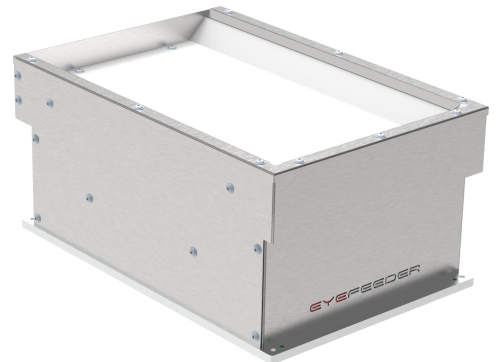
- Equipped with a conveyor belt and hopper unit driven by servomotors.
- Belt speed, shake intensity, and shake patterns are easily adjustable via the DENSO Teaching Pendant for quick product changes.
- Compatible with various belt types.
- Optional IR backlight for easier detection.
- Fully integrated software and hardware in the DENSO robot controller, eliminating the need for additional drivers, PLCs, or IPCs.

Available in three sizes (EF1000 / EF1200 / EF1400)

EYEFEEEDER® models EF0120 / EF0210 / EF0300:

- Equipped with a hard plastic surface tray.
- Driven by servomotors.
- Flip and separating speed, along with amplitude, can be precisely adjusted.
- Backward, forward, flip/separating intensity, and separating patterns are easily set on the DENSO Teaching Pendant for quick product behavior changes.
- Standard with IR backlight.
- Compact dimensions enable easy setup for tight spaces.
- Software and hardware are fully integrated in the DENSO robot controller, eliminating the need for additional drivers, PLCs, or IPCs.

Available in three sizes (EF0120 / EF0210 / EF0300).



Example of an EYEFEEEDER® EF0210



VISION SYSTEM:

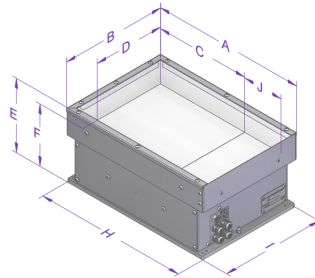
The product can be handled using either a Cognex or Keyence vision system.

- The EYEFEEEDER® includes a template program for seamless communication with the vision system and DENSO RC8A robot controller.
- It connects to the DENSO robot controller via the Open Network (ORiN) protocol.
- The vision system can be displayed through the DENSO Teaching Pendant, eliminating the need for additional HMIs.
- An IR filter mounted the vision camera is the ideal solution when IR backlighting is used with an EYEFEEEDER®.
- Other vision brands are available upon request.

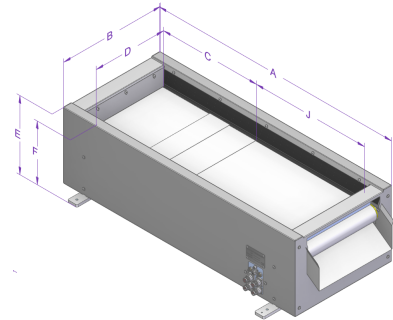
SPECIFICATIONS

SPECIFICATIONS:

EYEFEEEDER® models:
EF0120 / EF0210 / EF0300

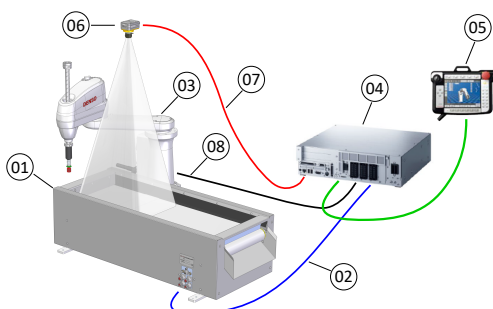


EYEFEEEDER® models:
EF1000 / EF1200 / EF1400



Model		EF0120	EF0210	EF0300	EF1000	EF1200	EF1400
Dimensions (mm)	A	±323	±454	±628	1000	1200	1200
	B	±224	±314	±404	417	507	597
	C	160	280	400	±400	±513	±620
	D	120	210	300	±300	±385	±465
	E	±215			±295		
	F	±180			±235		
	H	320	451	625	-		
	I	217	307	397	-		
J	±110	±121	±175	±466	±535	±464	
Drive		servomotors					
Air presuure (bar)		6 (option)			6 (purge valve)		
Communication		servomotors integrated in DENSO RC8 controller					
Degree of protection		IP40					
Backlight		Default IR=850nm			Optional IR=850nm		
Weight (kg)		±20	±22	±28	±45	±54	±60
IR-backlight zone ratio 3:4 (mm)		120x160	210x280	300x400	±300x400	±385x513	±465x620
Conveyor belt types		-			White, White with spikes, Black, Blue, Blue with spikes		
Surface types		Flat, Gridplate (addon), Inlay sheets with special contour / colors			-		
Product dimension (mm)		max. 5% of backlight/camera vision area					
Max. product weight		max. 50 gr			max. 300 gr		

CONFIGURATION:



Pos.	Qty.	Description	Length	Remark
1	1	EYEFEEEDER	-	-
2	1	EYEFEEEDER Motor/Encoder cable	2 , 3 , 5 , 10 m	EYEFEEEDER® models: EF0120 / EF0210 / EF0300 EF01000 / EF1200 / EF1400
3	1	DENSO robot	-	4- or 6 axis
4	1	DENSO RC8 robot controller	-	Included with DENSO robot
5	1	DENSO Teaching Pendant with cable	4 , 8 , 12 m	Display vision system
	1	DENSO Mini Pendant with cable	4 , 8 , 12 m	No display vision system possible
6	1	Vision camera	-	-
7	1	Ethernet cable vision camera	5 , 10 m	-
8	1	DENSO Motor & Encoder cable	2 , 4 , 6 , 12 m	-

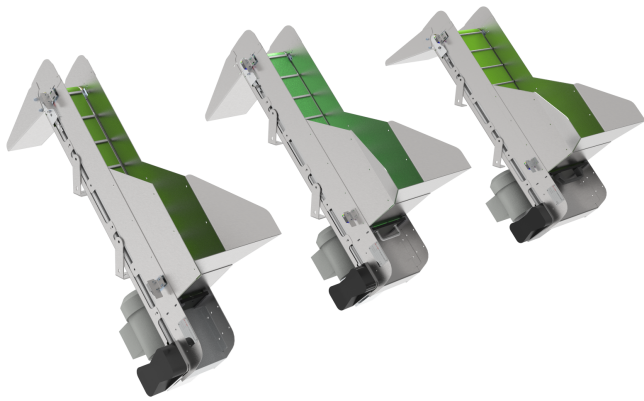
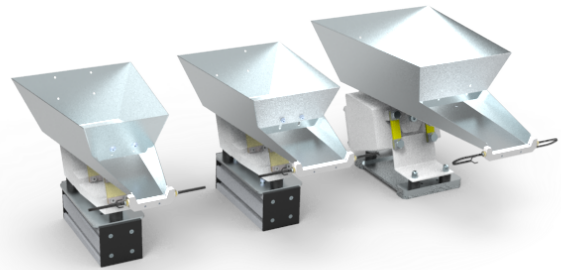
ACCESSORIES

EYEFEEEDER® VIBRATING BULK FEEDERS:

The EYEFEEEDER® electromagnetic vibrating bulk feeders are designed to efficiently feed parts to the EYEFEEEDER® system, with operation controlled through EYEFEEEDER® software.

The following models are available:

- **EBF01X** with 1,5 liter capacity.
- **EBF04X** with 4 liter capacity.
- **EBF07X** with 7 liter capacity.



EYEFEEEDER® CONVEYOR BULK FEEDERS :

The EYEFEEEDER® conveyor bulk feeders are designed to transport parts to the EYEFEEEDER® system, with operation managed through the EYEFEEEDER® software.

Available models:

- **EBC012**- 120mm wide bulk feeder
- **EBC020**- 200mm wide bulk feeder
- **EBC030**- 300mm wide bulk feeder

EYEFEEEDER® TOPLIGHT :

For certain EYEFEEEDER® applications, the toplight unit provides enhanced lighting. It serves as an alternative to the EYEFEEEDER® IR-backlight.

Available lighting options:

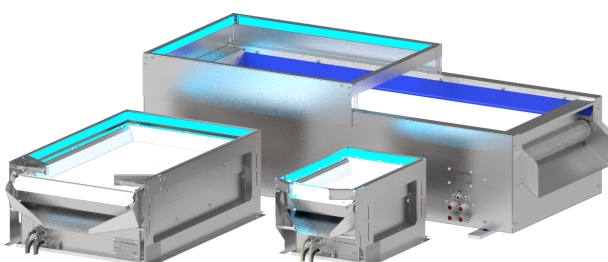
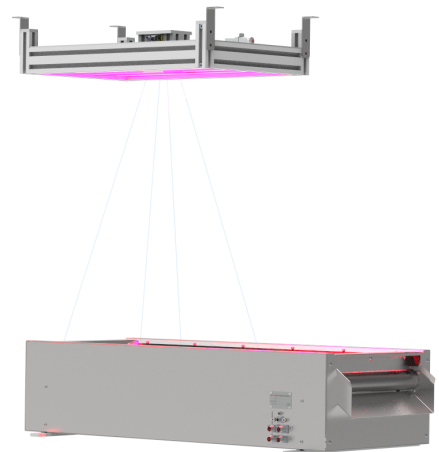
- White LED light
- Red LED light

Available models:

EFT240 – for EF0120 and EF0210 models

EFT100 – for EF1000 to EF0300 models

EFT120 – for EF1200 and EF1400 models



EYEFEEEDER® SIDELIGHT :

For EYEFEEEDER® applications involving clear or reflective products, the sidelight unit can enhance performance. It serves as an alternative to the EYEFEEEDER® IR-backlight and is compatible with all EYEFEEEDER® models.

The default LED color is blue, though other color options are available upon request.

FEATURES:

- **Flexible separation:**

A programmable system that supports multiple products on a single setup, consisting of an EYEFEEEDER®, robot, and vision system. This solution replaces the need for multiple bowl and linear vibration feeders, streamlining operations and enhancing flexibility.

- **Smart:**

Maximizes the capabilities of robots and offers broad applicability across various tasks, including assembly, handling, machine loading, packaging, and quality control.

- **Compact:**

The thoughtful design of the EYEFEEEDER® enables compact applications without the need for a return system, making integration easy and seamless.

Available versions:

EF1000 / EF1200 / EF1400

EF0120 / EF0210 / EF0300

- **Simplicity:**

The software and hardware are fully integrated into the DENSO robot controller, allowing for seamless operation. Belt or surface tray vibration patterns can be easily adjusted using the DENSO Teaching Pendant. No additional HMIs, PLCs, or controllers are required, simplifying the setup and operation.

- **Short cycle times:**

Short cycle times are achieved by rapidly moving products to the camera vision detection area and ensuring a continuous supply from the bulk feeder, enabling efficient and fast processing.

- **Various product handling:**

Product size ranges from 0.5 to 250mm (diagonal), with a weight range from 0.01 to 300gr.

CONTACT:



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PRODUCTION LINE EXAMPLE:

