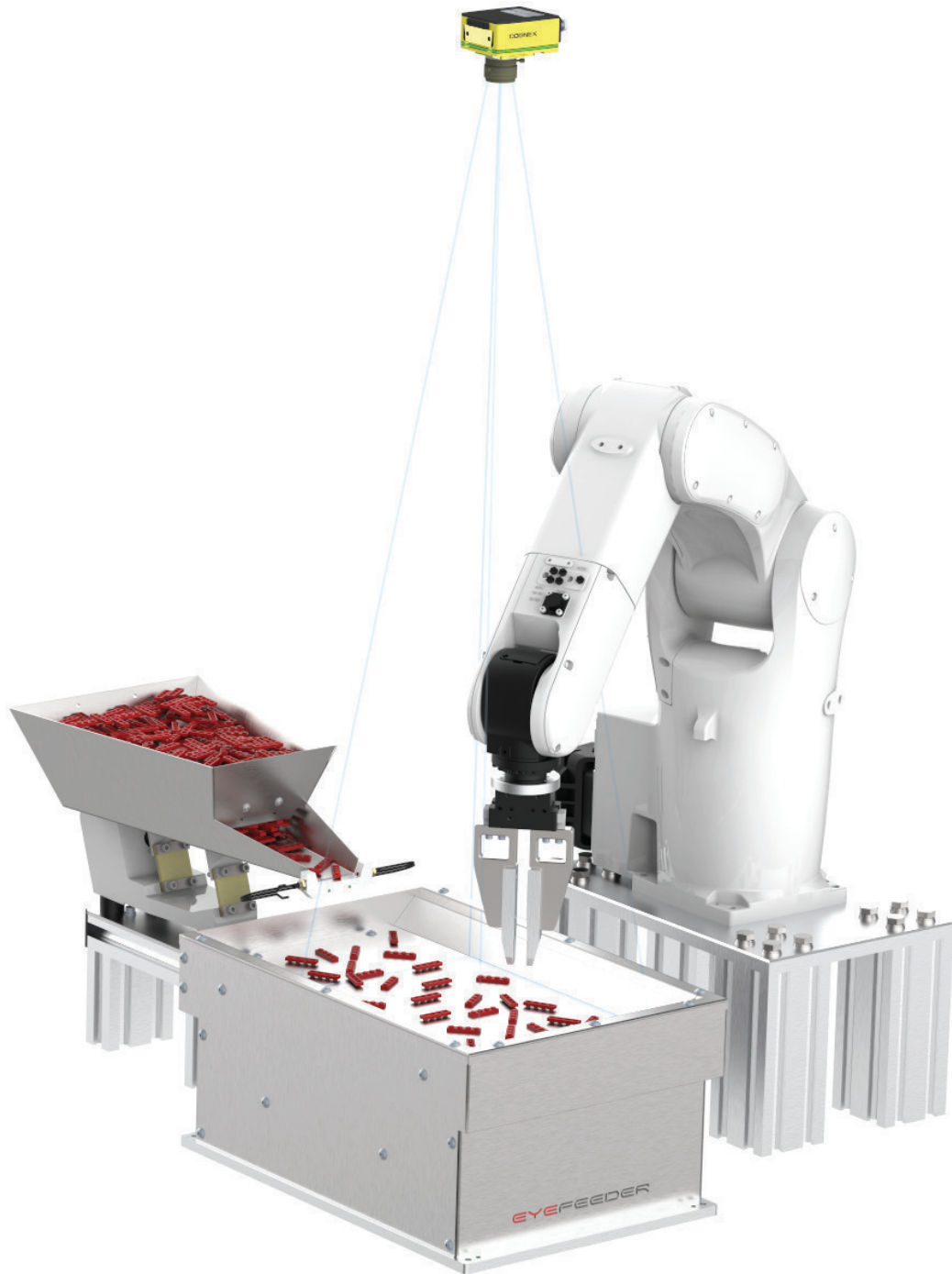


EYEFEEDEER[®]

the intelligent flexible feeder

PRODUCT OVERVIEW



CONCEPT

THE EYEFEEEDER® BASIC CONCEPT:

A machine application based on an EYEFEEEDER® is an all-in-one solution.

The EYEFEEEDER® is a patented flexible feeder.

- The EYEFEEEDER® is based on a conveyor belt or a hard plastic surface tray.
- Products are fed from a lift conveyor or a vibrating bulk feeder to the EYEFEEEDER®.
- The shaking system spreads or turns the products in the detection area of the vision system.
- A vision system detects well positioned products and passes the coordinates of those to the robot that picks the products and places them at the destination location.
- The product supply is fully integrated in the EYEFEEEDER® software and is adjustable via parameters and controlled by the DENSO robot controller.

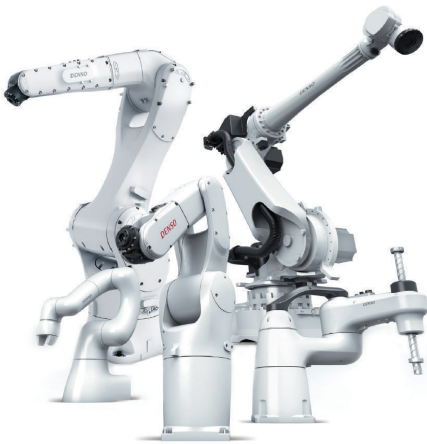
The EYEFEEEDER® consists of different types and sizes and are based on different techniques. All EYEFEEEDER® models can be equipped with backlight.

The EYEFEEEDER® machine concept is easy by selecting:

1. Correct size and model EYEFEEEDER® for your application.
2. Correct type of robot, depending on reach and type of movement.
3. Ideal vision camera and lens.
4. EYEFEEEDER accessories.



Basic example of a complete EYEFEEEDER® concept application



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

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 with a 4 –axis (SCARA) robot is possible, or direct assembly with a 6-axis robot.
- The PLC function in the DENSO RC8A robot controller allows direct operation of the EYEFEEEDER®, vision system or other components via its Teaching Pendant.
- Additional HMI's, PLC's or controllers are unnecessary.

VISION SYSTEM:

Product can be handled with a Cognex or Keyence vision system.

- The EYEFEEEDER® comes with a template program for communication with the vision system and the DENSO RC8A robot controller.
- Connection to the DENSO robot controller via Open Network (ORiN) protocol.
- The vision system can be displayed via the DENSO Teaching Pendant and makes additional HMI's unnecessary.
- Other vision brands on request.



FLEXIBLE FEEDERS



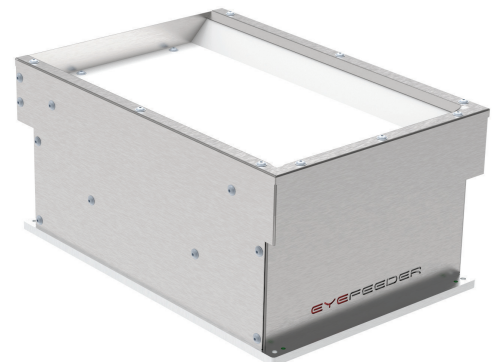
Example of an EYEFEEEDER® EF1000

EYEFEEEDER® models EF0800 / EF1000 / EF1200:

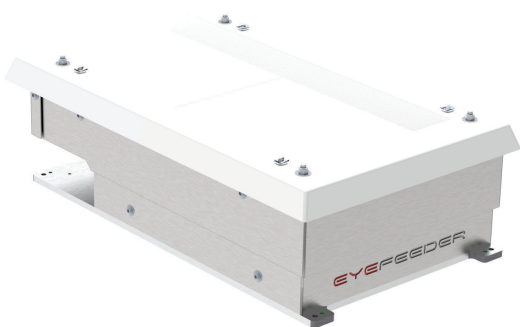
- Equipped with a conveyor belt.
- Driven by servomotors.
- Belt speed, shake-intensity and shake-patterns are easy to set on the DENSO Teaching Pendant which allows a quick product change.
- The software and hardware are fully integrated in the DENSO robot controller which makes additional drivers , PLC's or IPC's unnecessary.
- Can be equipped with different belt types.
- Optional IR-backlight to facilitate easier detection.
- Available in three sizes (800 / 1000 / 1200)

EYEFEEEDER® models EF0120 / EF0210 / EF0300:

- Equipped with a hard plastic surface tray.
- Driven by servomotors.
- Flip and separating speed can be precisely adjusted together with the amplitude.
- Backward, forward, flip/separating-intensity or separating-patterns are easy to set on the DENSO Teaching Pendant which allows a quick product behaviour change.
- Software and hardware are fully integrated in the DENSO robot controller which makes additional drivers, PLC's or IPC's unnecessary.
- Its small dimensions make compact applications setup possible.
- Comes standard with IR-backlight.
- Available in three sizes (EF0120 / EF0210 / EF0300).



Example of an EYEFEEEDER® EF0210



Example of an EYEFEEEDER® EF0245

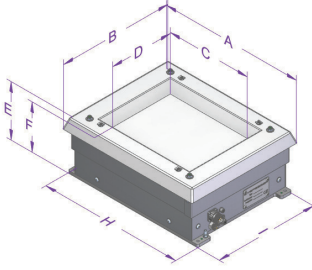
EYEFEEEDER® models EF0162 / EF0165 / EF0242 / EF0245:

- Equipped with a hard plastic surface tray.
- Driven by pneumatics.
- Software is fully integrated in the DENSO robot controller and communication takes place via digital I/O's.
- Optimal spreading of the products can be obtained by selecting different shaking patterns on the DENSO Teaching Pendant.
- Its small dimensions make compact applications setup possible.
- Comes standard with IR backlight.
- Available in several sizes & models (open or closed surface trays).

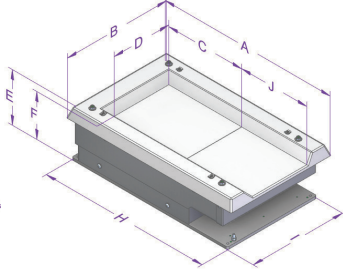
SPECIFICATIONS

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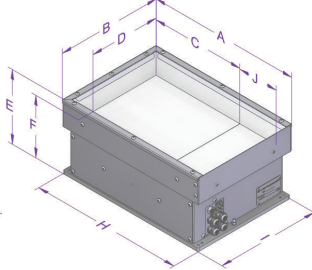
EYEFEEEDER® models:
EF0162 / EF0242



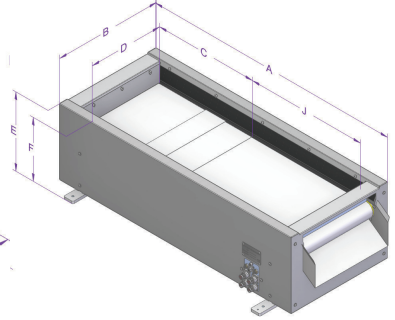
EYEFEEEDER® models:
EF0165 / EF0245



EYEFEEEDER® models:
EF0120 / EF0210 / EF0300

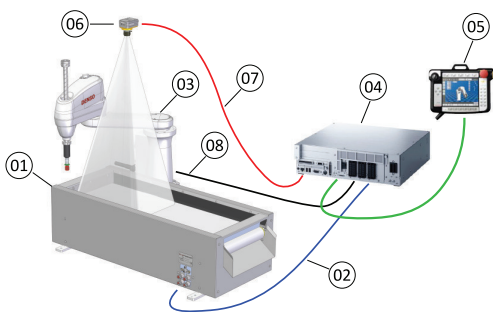


EYEFEEEDER® models:
EF0800 / EF1000 / EF1200



Model	EF0162	EF0165	EF0242	EF0245	EF0120	EF0210	EF0300	EF0800	EF1000	EF1200	
Dimensions (mm)	A	325±2	463±2	405±2	544±2	±323	±454	±628	800	1000	1200
	B	270±2	270±2	330±2	330±2	±224	±314	±404	327	417	507
	C	160		240		160	280	400	266	400	513
	D	120		180		120	210	300	200	300	385
	E	158±2					±215			±295	
	F	136±2					±180			±235	
	H	325	433	405	513	320	451	625	-	-	-
	I	234	234	294	294	217	307	397	-	-	-
	J	-	±228	-	±220	±110	±121	±175	±395	±466	±535
	Drive	pneumatics					servomotors				
Air pressure (bar)	2	2 + 6	2	2 + 6	6 (option)			6 (purge valve)			
Communication	Digital I/O's					servomotors integrated in DENSO RC8 controller					
Degree of protection	IP40										
Backlight	Default IR=850nm							Optional			
Weight (kg)	±8.5	±10.5	±12.5	±14.5	±20	±22	±28	±36	±45	±54	
IR-backlight zone ratio 3:4 (mm)	120x160	120x160	180x240	180x240	120x160	210x280	300x400	±200x280	±300x400	±400x533	
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. 30 gr				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	Only with Eyefeeders: EF0120 / EF0210 / EF0300 EF0800 / EF1000 / EF1200
	1	EYEFEEEDER I/O cable	8 m	Only with Eyefeeders: EF0162 / EF0165 / EF0242 / EF0245
3	1	DENSO robot	-	4- or 6 axis
4	1	DENSO RC8 robot controller	-	Is 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	-

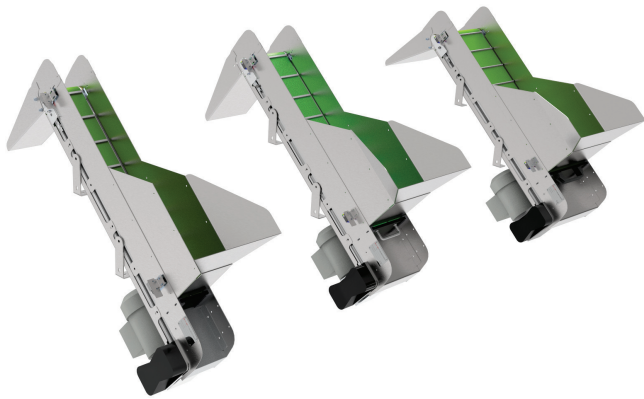
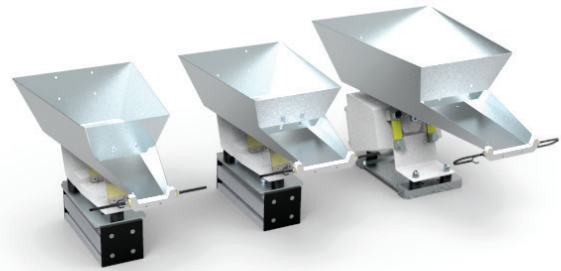
ACCESSORIES

EYEFEEEDER® VIBRATING BULK FEEDERS:

The EYEFEEEDER® electromagnetic vibrating bulk feeder can be used for feeding parts to the EYEFEEEDER® and is controlled by the 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 feeder can be used for feeding parts to the EYEFEEEDER® and is controlled by the EYEFEEEDER® software.

The following models are available:

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

EYEFEEEDER® TOPLIGHT :

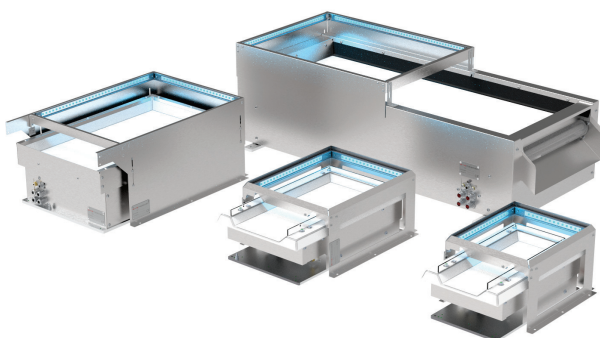
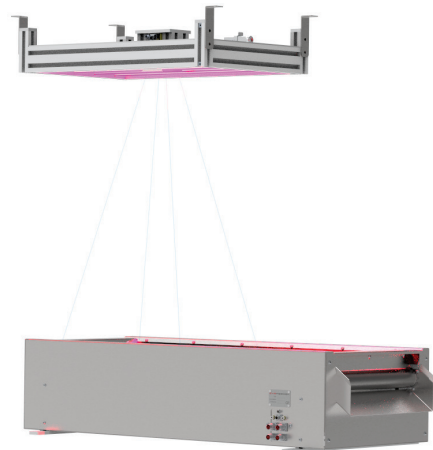
Some EYEFEEEDER® applications work better with toplight. The toplight unit is an alternative for the EYEFEEEDER® IR-backlight.

Toplight unit is available in:

- White LED light.
- Red LED light.

The following models are available:

- EFT240 for EF0120- EF0210- EF016x- EF024x models.
- EFT100 for EF0800- EF1000-EF0300 models.
- EFT120 for EF1200 model.



EYEFEEEDER® SIDELIGHT :

EYEFEEEDER® applications with clear or reflecting products can work better with sidelight. The sidelight unit is an alternative for the EYEFEEEDER® IR-backlight and is available for all EYEFEEEDER® models.

The default LED colour is blue, however other colours are a possibility.

FEATURES:

- **Flexible separation:**

Programmable system allowing multiple products on one system, consisting of an EYEFEEDER®, robot and a vision system. One system replaces multiple bowl and linear vibration feeders.

- **Smart:**

Makes full use of the robots and is widely applicable: assembling, handling, machine loading, packaging and quality control.

- **Compact:**

The thoughtful design allows compact applications. No return system needed, so easy to intergrate.

The EYEFEEDER® is available in versions:

- EF0800 / EF1000 / EF1200
- EF0120 / EF0210 / EF0300
- EF0162 / EF0165 / EF0242 / EF0245

- **Simplicity:**

Software and hardware are fully integrated in DENSO robot controller. Belt or surface tray shake patterns can easily be adjusted through DENSO Teaching Pendant. No additional HMI's, PLC's or controllers required.

- **Short cycle times:**

Short cycle times are made possible by moving products forward at high speed to the camera vision detection area and the continuous supply of a bulk feeder.

- **Various product handling:**

Product size: 0,5 to 250mm (diagonal), product weight from 0,01 to 300g.

CONTACT:



- **Dealers in Europe:**

for contact details please visit www.eyefeeder.com

T : +31 (0) 20 472 4552

W: www.eyefeeder.com

@: info@eyefeeder.com

PRODUCTION LINE EXAMPLE:

