



Feeding systems for stationary use

Efficient and intelligent feeding with eacy feed, the new generation vibratory bowl feeder.

- **Approx. 80 % energy savings**
- **Smart factory/Industry 4.0-capable**
- **Efficiency and worldwide application - one design for all markets**

Feed systems are essential for productivity and efficiency in automatic assembly machines. Originally developed for shaft-heavy screws, today's DEPRAG feeding systems are capable of processing screws of all types with or without washers, threaded bolts, pins, rivets, nuts, washers, o-rings and diverse other small components.

Over 40 years of experience in the development and manufacture of feeding technologies and the high standards of our production site guarantee products of consistent outstanding quality.

<h3>Feeding Technology</h3>			<p>INTELLIGENT EFFICIENT FEEDING</p>
<p>New generation vibratory bowl feeder</p>			
			

FEEDING SYSTEMS FOR STATIONARY USE

100% reliability → productivity and system accuracy!

Our feeding systems have been designed for the reliable supply of fasteners to enable outstanding accuracy and productivity for your assembly system. Integration into your control system is particularly simple and convenient. The range includes vibratory spiral feeders, sword (segment) feeders, linear conveyors, storage systems, tape-on-reel feeders and screw presenters.

Outstanding reliability and efficiency

- High feed rate
- Even complex components are correctly oriented
- Option for two screwdrivers or multi-spindles on one device
- Storage systems, such as hoppers, increase refill intervals

Production and choice of materials

The high level of vertical integration, the use of

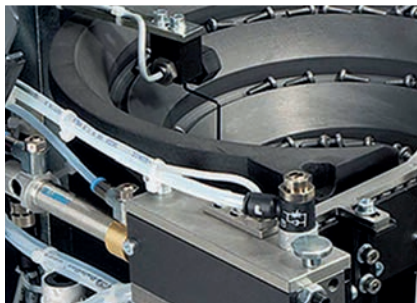
specially hardened, wear-resistant materials such as specific coating methods, ensure the outstanding quality and reliability of our products.

Ready for immediate use

Before delivery, your feeder undergoes a continuous test in simulation of series production replicating your production working cycle. Each device is comprehensively tested – 100%.

VIBRATORY BOWL FEEDER - EACY FEED

The vibratory feeders are our most popular feeding devices. The innovative feeder eacy feed provides ideal specifications for the sustainable production of tomorrow: energy efficient and communication capable. eacy feed is available in four fill sizes: 0.15 l, 0.75 l, 1.2 l and 2.5 l in single and double spiral design.



e for efficiency

eacy feed – new generation vibratory bowl feeder with approx. 80 % reduction in power consumption due to efficient “low energy technology”!



a for assembly

eacy feed – new generation vibratory bowl feeder with ergonomic handling by means of an optimised module.



c for communication

eacy feed – new generation vibratory bowl feeder with intelligent communication capabilities for application in a smart factory/ Industry 4.0 environment.

y for yield

eacy feed – new generation vibratory bowl feeder with optimised, technical efficiency due to robust design and tried and tested modular components.

Approx. 80 % Energy savings

The revolutionary controller and the new drive allow for the extraordinary energy efficiency of eacy feed

- a significant reduction in power consumption is attained due to the 24 V oscillating magnets, thereby realising energy savings of around 80 %

Smart Technology

- the revolutionary controller enables remote control and communication
- the eacy feed can be accessed from anywhere in the world via TCP/IP
- all settings can be displayed and adjusted at any time
- eacy feed is particularly suitable for smart factory/ Industry 4.0-systems

Low Consumption and top Flexibility

- revolutionary controller enables around 80 % less power consumption
- new controller and vibratory drive based on 24 V/DC voltage
- universal power unit (115 V – 230 V)
- independent from the local alternating current frequency
- one design for all markets

Perfect Vibration Intensity

For monitoring and regulation of the vibration intensity an acceleration sensor is mounted on the vibratory drive.

- ensures stable output, independent from fill-level
- no need for readjustments
- supports ideal vibration behaviour and minimises material wear
- simplified reloading procedure
- accommodates all bowl sizes

Flexible Use

Used in assembly systems within complex automated production lines – eacy feed precisely and reliably supplies connection elements. If eacy feed is used in conjunction with the control and operating unit DPU (DEPRAG Processing Unit) an additional industrial demand is fulfilled: Communication capabilities for Industry 4.0 and Smart Factory.

The use of TCP/IP network protocols allows access to the EACY Feed controller's network from anywhere in the world. All settings can be displayed or adjusted once a connection is established with the smart eacy feed using a smartphone, tablet or computer.

The operator can for example, alter the frequency and amplitude settings via their smartphone so that function of the feeder can be guaranteed from any location.

Simpler for the Fitter and Operator

The corresponding software PFCi100 has been developed alongside the control unit DPU for maximum user friendliness. The parameters required for the device can be simply and easily adjusted using the slide bars on the touch screen – there is no need to access the feeder's sequence controller.

If several operators are using the same feeder at the same time, the efficiency of the process can often be compromised by the varying working speeds of each individual. DEPRAG feeders cleverly adapt to the individual working speeds of each operator. Once entered via the simple display, the specific operating parameters of each person are saved (storage of up to ten data sets) and can be recalled when there is a shift change. No one feels held back and no one feels overstretched.

VIBRATORY BOWL FEEDER - EACY FEED

Precision and Timing

The fill volume influences the feed rate in standard vibratory spiral feeders. If the feed bowl is full, the system works at a slower rate and if it is emptier the rate speeds up. As with the previous generation, the eacy feed is also fitted with a measurement transducer which records the oscillation amplitude in the feed bowl. This thereby adaptively regulates the feeder depending on the fill volume – ensuring reliability as the screws are continuously in readiness for processing.

The feed rate is adjustable using twelve different waveforms. The amplitude or frequency can be set in an instant. Individual settings can be used for example, to optimise the feed volume or reduce the noise level of the feeder. The adjustments can be carried out quickly and without mechanical intervention. When using eacy feed the required settings can simply be selected on the DPU.

Smart factory/Industry 4.0 can be found in all branches of industrial production. Intelligent, integrated smart components are in demand throughout the entire value chain. With the development of the innovative controller PFCi100 we are realising smart factory/Industry 4.0, the fourth industrial revolution. PFCi100 enables remote control, documentation and interaction with eacy feed, enabling the device to be monitored and controlled from anywhere in the world.

Integrated functions of the PFCi100

- » external master IPC (e.g. DPU100) operational platform
- » enables remote control and communication
- » bus interface
- » adjustable via IPC (DPU100)

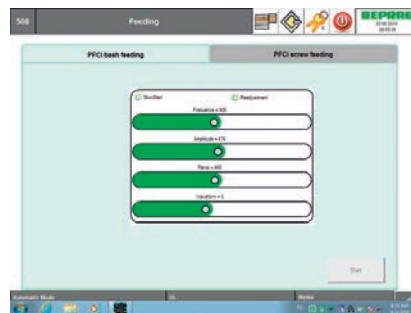
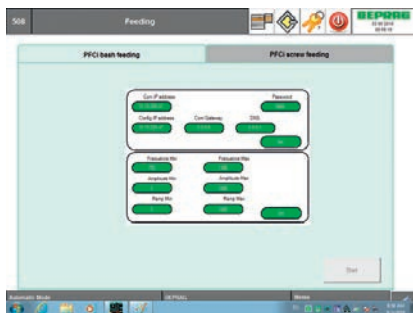
- » communication via TCP/IP
- » programmable via integrated web browser

Operator platform DPU

The DPU (DEPRAG Processing Unit) provides exceptional user-friendliness. Settings can be simply adjusted via the slide bars on the touch screen.

DPU setting options

- » frequency
- » amplitude
- » acceleration ramp
- » soft start
- » waveform



SWORD FEEDER

Sword feeders are particularly suitable for use in cleanroom environments. One advantage of the sword feeder is the very gentle, low abrasion part feeding. Sword feeders are available in two fill sizes: 0.15 l or 1.5 l

Correctly oriented sorting

The feed parts in the supply bin are scooped up into a segmented rail by a tilting motion. The feed parts slide along this rail through mechanical chicanes and arrive correctly sorted in the storage rail.



Self-regulated feed intensity

A sensor in the storage rail regulates the number of stroke movements required. The required fasteners are perfectly timed and positioned ready for assembly.

Low noise levels

The low noise level of the sword feeder makes it particularly popular with operators in production. DEPRAG sword feeders are very quiet due to a specially designed separator and an adapted controller sequence.

Efficient assembly

The high level of vertical integration, use of specially hardened wear-resistant materials, as well as specific coating methods, ensure the consistently high quality, outstanding reliability and efficiency of the sword feeder.

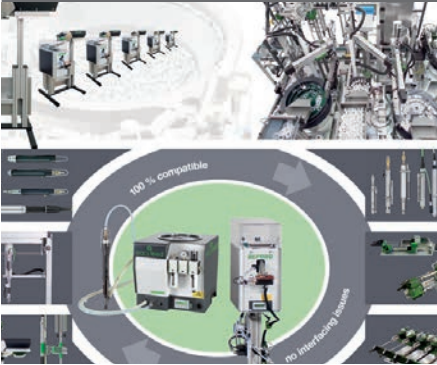
Customised design

If you need to directly integrate a feeding system into your assembly system and current dimensional conditions must be taken into consideration, we can adapt our standard devices to fit your operating environment.



OUR RANGE ON FEEDING SYSTEMS

One Stop Shop



Your end-to-end solution: application consultancy, operator training, fully developed system components, screwdrivers, feeders, controllers and process monitoring. All components are designed to be compatible with each other and have been tried and tested over many years - in-house developed and manufactured.

The perfect technology for your application:

- Vibratory Feeder
- Sword (Segment) Feeder
- Linear Conveyors
- Pick-and-Place Feeding
- Tape-on-Reel Feeding
- Screw Presenter
- Storage Devices

Vibratory Feeder



Stationary feed systems for the processing of small components of all kinds, such as screws, pins, bolts, rivets, nuts, washers and o-rings. Vibratory feeders feature a high output rate in comparison to other feed systems.

We offer stationary screwfeeders with vibratory drive for screws < M1 to M20. Screws with a shaft length from 5 mm up to 130 mm can be processed. Even countersunk screws can be fed easily by our vibratory feeders.

Design Sizes:

0.05 l Feed volume	Page 11
6.0 l Feed volume	Page 15
12.0 l Feed volume	Page 15

Design Sizes eacy feed:

0.15 l Feed volume	Page 12
0.75 l Feed volume	Page 12/17
1.2 l Feed volume	Page 13
2.50 l Feed volume	Page 14/17

Sword (Segment) Feeder

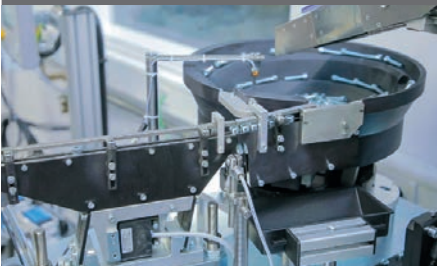


Sword feeders or segment feeders are used when the requirement calls for gentle, almost noiseless feeding of sensitive fasteners. Our sword feeder systems can process screw sizes from M2 to M6. They are ideal for screws up to 25 mm in length. Sword (segment) feeders are also well-suited for the processing of balls and pins.

Design Sizes:

0.15 l Feed volume	Page 16
1.50 l Feed volume	Page 16

Linear Conveyors



Our linear conveyors are part of a sophisticated feeding system, which can, for example, in combination with vibratory feeder or Pick-and-Place systems, be coordinated to your application.

Linear conveyors can be used to transport parts over larger distances within your assembly system, to allow for a parts buffer or to allow for the constant and consistent flow of parts.

Our robust linear conveyors enable correct sorting in the feedbowl, thereby preventing jams or parts becoming wedged or backed up to the feedbowl.



Pick-and-Place procedure - the alternative to hose feeding - no longer reliant on part geometries!

If the screw dimensions do not allow feeding through a feedhose, for example where there is an unfavorable relation between screw head diameter and overall length, we can offer special solutions, such as the pick-and-place procedure with vacuum suction or removal by gripper.

This process can also be used for screw locations which are difficult to access.

For stationary applications, vacuum technology or gripper handling is predominantly used. The release and reload procedure is controlled by PLC using sensor monitoring.

Pick-and-Place Feeding



DEPRAG tape-on-reel feeders are used to supply components on single or double-sided adhesive tape reels.

Tape-on-reel feeding technology uses a tape reel inserted in a roll receptacle. The tape is pulled by the unwinder until the next component is in the detached position. Once the sensor detects that the component has reached the detached position, a downholder moves down into position to hold the tape.

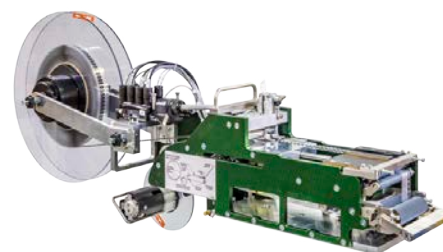
Once the part tool (e.g. a vacuum gripper) is ready for pick-up (i.e. vacuum is switched on),

the slide carriage runs back and the tape is pulled off the winder over the slide carriage blade.

The components are loosened from the tape and are now ready for processing. Once the part tool has moved away from the pick-up position, the downholder moves upwards, the slide carriage runs forwards again and the winder moves the next component on the tape reel into the pick-up position.

→ Catalogue D3870E

Tape-on-Reel Feeding



Screw presenters are particularly suitable for the automated supply of screws, both in preparation for manual pick-up and for stationary integrated screwdrivers. Are you looking to automate your assembly? Screw presenters are a fast, cost-effective solution for assembly of small production batches.

- Screw feeding via two lift segments in the screw bin, enabling gentle, quiet feeding. Screws fall onto a vibrating guide rail and are then brushed into the correct position and transported onwards.
- The integrated controller in the device enables stand-alone operation.

- Screw supply is accurate and reliable due to the regulated sequence controller using light barrier and microswitch.
- Owing to the compact design, if required, several DEPRAG screw presenters can be arranged even in coned work spaces.
- Special solutions on request.
- User-friendly
Secure, fast pick-up of supplied screws using magnetic bit or vacuum.

→ Catalogue D3840E

Screw Presenter



A valuable addition to your feeding system enabling significantly increased refill intervals.

Flexible - no need for costly modifications when using a variety of feed products. The hopper outlet can be adjusted to the size of the feed parts. Further adjustments can be made to allow settings in two directions.

Low noise and low-wear - the outlet chute is enclosed, meaning a substantial reduction in noise. Sound-proof inserts are available as special accessories for all vibratory spiral

feeders. They are specifically designed for use together with a hopper.

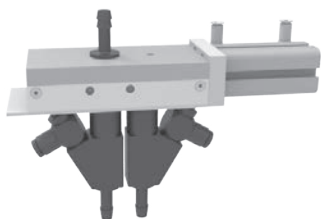
Simple operation and easy set-up - the DEPRAG hoppers are equipped with a 24 V gear motor. They can be simply operated via an output on the higher-level PLC.

Gentle component handling minimises the waiting time of feed parts in the vibratory system.

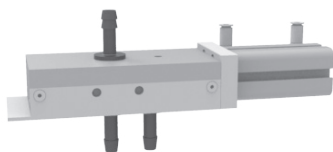
→ Catalogue D3850E

Storage Devices

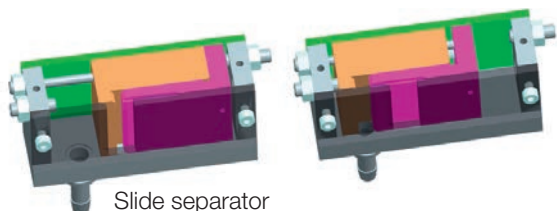




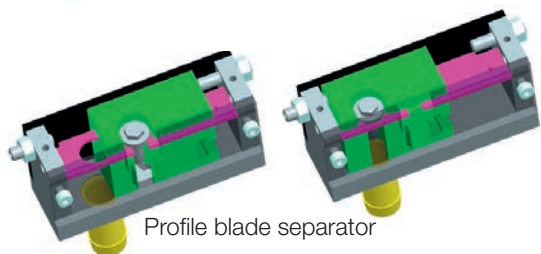
Distributor with hose nozzles for pre-separation of the screw



Distributor with standard hose nozzles



Slide separator



Profile blade separator

Distributor

If more than two positions (i.e. screwdriver spindles) have to be supplied out of one feeder, then so called pre-separation hose nozzles can be used. These distributors can supply 2, 3, 4, 5 or even 6 channels.

To increase the feed rate the distributors can be operated by pre-separators (version "V"). With such a system, the feed parts separator can be operated parallel to the processing time. The feeding of the hardware will be done simultaneously for all channels. This type of feed system is also used when feeding has to be done against gravity (i.e. underfloor assembly).

Screw Separator

The screws exit the feed bowl in a well ordered line ready to be separated at the end of a retaining rail. Different types of separators can be provided depending on the geometry of the material (e.g. screws).

Control

The standard version (version "O") of our feed system does not include pneumatic valves or a sequence controller. The vibratory feeder bowl includes the integrated control unit. The necessary pneumatics, as well as sequence controller are the essential components of a complete assembly unit. If components are ordered, the corresponding pneumatic and function diagrams are made available.

To keep design costs to a minimum and to simplify installation, all devices can be supplied with pneumatic valves. There is wiring up to the terminal block (version "P"). Again, if components are delivered we will provide an terminal plan.

The version "P" includes all necessary valves for the operation of the screwfeeding machine.

The third available version with the designation "EP" offers screwfeeding machines with 1 to 4 outlets, and includes pneumatic and electronic sequence control. To feed the next screw, only a 24 V signal is necessary. This means the customer can use a smaller PLC and no programming is necessary for the screw feeding. Therefore, the series "EP" is an especially economical and reliable solution and should be given preference.

Control Units

We offer different control units to control our vibratory drives.

- **Piezo controller**
is used for bowl sizes of 0.05 l (0.01 gal.)
- **Feeder controller PFCi100 / PFC100 for easy feed feeding systems**
is used for bowl sizes of 0.15 l (0.04 gal.), 0.75 l (0.2 gal.), 1.2 l (0.32 gal.) and over 2.5 l (0.66 gal.) capacity

These units conform to the protection type no. IP54. A soft start feature is integrated into the control unit of the vibratory drive.

NEW: PFC18L Controller
(IP30 protection class) to control our 1.5 liter sword feeders.

- operational voltage 24 V/DC
- little power consumption
- 10 different menu languages
- illuminated display
- power unit with extended voltage range (115 V – 230 V)
- independent from the respective local A/C voltage
- one design for all markets



PFCi100 Controller



PFC100 Controller



PFC18L Controller

Additional Accessories

To complete the automatic assembly station, we provide additional components, such as:

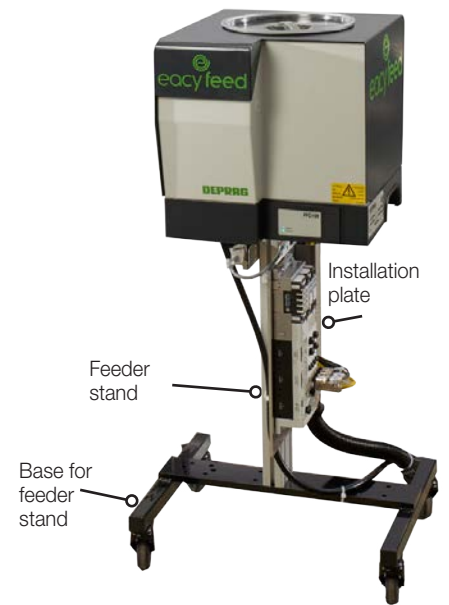
- Standard mouthpiece
- Tilttable mouthpiece
- Nosepiece ball type, single
- Nosepiece ball type, double
- Nosepiece ball type with extension
- Nosepiece split type
- Nosepiece with attachment piece
- Ring proximity switch for screw presence sensors
- Fill level indicator
- Feeder stand
- Base for feeder stand
- Storage devices (Catalogue D3850E)



Nosepiece



Special nosepiece with mouthpiece



Screws or o-rings, nuts or threaded pins, rivets or balls: Different components and fasteners require different feeding methods. Special provisions come into play for applications requiring technical cleanliness and for sensitive parts requiring particularly gentle handling.

Screws



For the processing of screws, de-pending on size, we recommend a vibratory feeder or a sword (segment) feeder. To make the first step toward automation of your assembly process, we recommend our screw presenter.

Pins



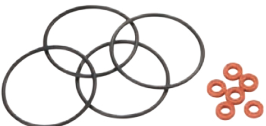
For the processing of pins, we recommend a vibratory feeder. For standard applications we can offer handheld feeding systems. An adapted separator is often used for stationary applications.

Nuts



For the processing of nuts we recommend a vibratory feeder. We can provide standard systems for handheld and stationary applications.

O-Rings



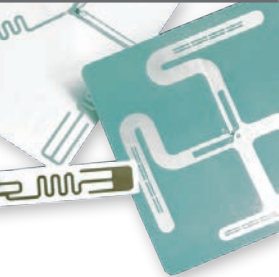
For the processing of o-rings we recommend a vibratory feeder. Our feed systems can be implemented as part of an assembly solution into stationary machines. The o-ring will be supplied to the pick position and then handled and positioned by the assembly system.

Components



We are able to sort and process many different types of components with our vibratory feeder in combination with a linear conveyor. The use of sensors allows us to process components with varying geometries in our stationary feeding systems.

Small components supplied by reels



The DEPRAG tape-on-reel feeder is designed for the delivery of adhesive components (e.g. seals), which are supplied on reel tapes. These adhesive components can be lifted from the pick-up location by vacuum or gripper. This type of feeding system allows the processing of both single-sided and double-sided adhesive components.

Labels



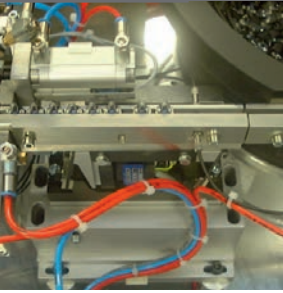
Labels, tags and films are primarily supplied on reels. A DEPRAG tape-on-reel feeder is recommend to lift them using vacuum suction.

Parts to be press-fitted



For the processing of rivets, pins, sleeves and balls, we can offer our standardised press-fit systems consisting of a pressurised device connected to either a vibratory feeder or sword (segment) feeder.

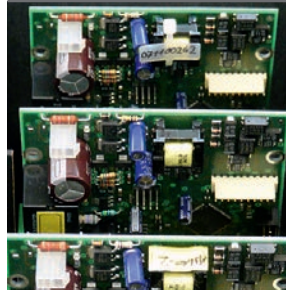
Components requiring gentle handling



Sword (segment) feeders are especially suited for gentle feeding procedures. Vibratory Feeders can also be coated with a fibre coating or soft PUR-coating which protects the surface quality of your components. A storage device can be set to keep the fill-level of the feeding-system to an absolute minimum which again serves to protect the surface quality of your components.

If your components need even gentler handling then we can palletise them and process them by a gripper or vacuum handling system. Please contact us for additional information.

Part assembly in cleanrooms



A vibratory feeder in connection with a suction device can be used to process components in cleanrooms class D. If your cleanroom requirement is even higher, then a palletised solution with gripper or vacuum handling can be used.

STRUCTURE OF STATIONARY SCREW FEEDING SYSTEMS

DEPRAG screw feeders consist of the supply system itself, an air connection, a power switch and an electronic controller including feedhose, in standard length 4m.

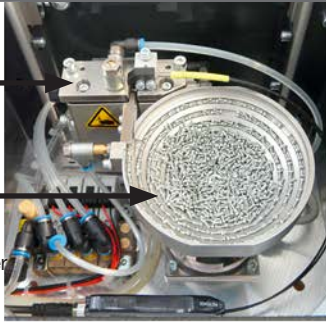
With either vibratory bowl feeder or sword feeder



screw separator

with single or double spiral bowl

can be combined with any screwdriver model



If feeding with a hose system is not possible, we offer special solutions, such as the pick-and-place procedure

defined pick position with integrated screw pick control option



with hopper and sort segment

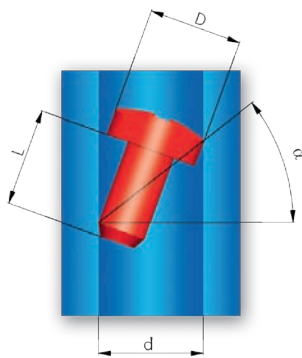
sword feeder with a separator system

Distributor system see page 6

GUIDELINE FOR THE SELECTION OF A SUITABLE SCREWFEEDER

STEP 1:
Feeding criteria

Basically all “shaft heavy” screws with heads which fulfil the following criteria are suitable for processing with our feed systems:



Feeding criteria:
 $\alpha > 30^\circ$

$d \sim D + 0.5 \text{ mm}$

Approximate formula:
 $L > D + 2 \text{ mm}$

d = Internal diameter feed hose
D = Screw head diameter
L = Screw shaft length

STEP 2:
Screw Quality

DIN quality standard fasteners (allowable 3% bad parts) is not always sufficient for reliable feeding machines.

Higher levels of screw/fastener quality improve the feeder's reliability.

The goal should be a quality grade of 10 ppm (“parts per million”). This means every 100,000 screws there can be 1 bad part.

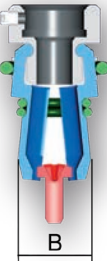
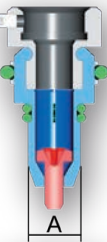
STEP 3:
Which feeding principle is best suited to your application?

A vibratory spiral bowl is particularly suited to screws with awkward dimensions or those with special feed rate requirements. The sword feeder is used when extremely gentle handling of the parts is required or when very low noise level is a must. If feeding with a hose system is not possible we also offer pick-and-place procedure.

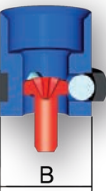
STEP 4:
Determine the screw receiver

At the end of the mouthpiece there is a nosepiece ball type (1 or 2 rows) or a nosepiece split type, mounted to receive and position the screw.

Nosepiece split type



Nosepiece ball type



D = Head diameter
d = Shaft diameter
n = Space required to open

$A = D + 2.5 \text{ mm}$
 $B = A + D - d$

$B = 3D - 2d + 5 \text{ mm}$

$n = A \times B$

$n = \varnothing B$

STEP 5:
Space available on the component

The available space around the screw head on the assembled components is very important for effective use of the handheld screw feeders. Both the nosepiece split type and ball type have space requirements.

STEP 6:
Single or multiple feeding/screwdrivers

Single and double spiral bowls are available for vibratory bowl feeders. You can also get more out of each feeder with only one outlet using a distributor to further divide the feed parts into several hose outlets. In this way up to twelve outlets can be created from just one feeder by using a double spiral bowl and 2 six-fold distributors. The selection of the correct feeder depends in particular on the cycle time required. Please ask your local representative for further information.

STEP 7:
Specifications

In order to design your feeder we need the following information from you:

- Number of screwdriving spindles to be used
- Cycle time (described in detail if possible)
- Feeding design (vibratory bowl feeder or sword feeder) if you have a preference
- Controller design (without valves as version „O“, with valves as version „P“ or with valves and sequence controller as version „EP“)
- Details of feed part geometry (e.g. dimension sheet of the screw with tolerances)
- Details of required length of feedhose(s) Details of the geometry of the screw-in position (3D model in format STEP or IGES)
- Voltage/mains frequency

To process your order we will also require approx. 1 sample load of parts to fill the capacity of your feeding system.

TECHNICAL DATA FEEDING MACHINES VIBRATORY BOWL FEEDERS

Filling capacity 0.75 liter – for screws with max. shaft length 35 mm
– for small components



Filling capacity 0.75 l / 0.2 gal. with PLC	Type	01011	01022	–	–	01011-2	01011-3	01011-4	–	–
		-EP/0.75	-EP/0.75			-EP/0.75	-EP/0.75	-EP/0.75		
Control unit		PFC100 controller (insulation IP54)								
Filling capacity 0.75 l / 0.2 gal. without PLC	Type	01011	01022	01012	01024	01011	01011	01011	01011	01011
		-0/0.75	-0/0.75	-0/0.75	-0/0.75	-2-0/0.75	-3-0/0.75	-4-0/0.75	-5-0/0.75	-6-0/0.75
		-P/0.75	-P/0.75	-P/0.75	-P/0.75	-2-P/0.75	-3-P/0.75	-4-P/0.75	-5-P/0.75	-6-P/0.75
		-0/0.75V	-0/0.75V	-0/0.75V	-0/0.75V	-2-0/0.75V	-3-0/0.75V	-4-0/0.75V	-5-0/0.75V	-6-0/0.75V
		-P/0.75V	-P/0.75V	-P/0.75V	-P/0.75V	-2-P/0.75V	-3-P/0.75V	-4-P/0.75V	-5-P/0.75V	-6-P/0.75V
Control unit		PFC100 controller (insulation IP54)								
Filling capacity 0.75 l / 0.2 gal. without PLC (integrated version with regulation of the feeder controller directly via DEPRAG - PLC)	Type	01011i	01022i	01012i	01024i	01011i	01011i	01011i	01011i	01011i
		-0/0.75	-0/0.75	-0/0.75	-0/0.75	-2-0/0.75	-3-0/0.75	-4-0/0.75	-5-0/0.75	-6-0/0.75
		-P/0.75	-P/0.75	-P/0.75	-P/0.75	-2-P/0.75	-3-P/0.75	-4-P/0.75	-5-P/0.75	-6-P/0.75
		-0/0.75V	-0/0.75V	-0/0.75V	-0/0.75V	-2-0/0.75V	-3-0/0.75V	-4-0/0.75V	-5-0/0.75V	-6-0/0.75V
		-P/0.75V	-P/0.75V	-P/0.75V	-P/0.75V	-2-P/0.75V	-3-P/0.75V	-4-P/0.75V	-5-P/0.75V	-6-P/0.75V
Control unit		PFCi100 controller (insulation IP54)								
Amount of connectable drivers		1	2	2	4	2	3	4	5	6
Feed rate	parts/min	40	2x40	2x20	4x20	2x20	3x13	4x10	5x8	6x6
Filling capacity	liter / gal.	0.75 / 0.2	0.75 / 0.2	0.75 / 0.2	0.75 / 0.2	0.75 / 0.2	0.75 / 0.2	0.75 / 0.2	0.75 / 0.2	0.75 / 0.2
Max. head diameter	mm / in.	12 / ¹⁵ / ₃₂	8 / ⁵ / ₁₆	12 / ¹⁵ / ₃₂	8 / ¹⁵ / ₃₂	12 / ¹⁵ / ₃₂	12 / ¹⁵ / ₃₂	12 / ¹⁵ / ₃₂	12 / ¹⁵ / ₃₂	12 / ⁵ / ₃₂
Max. shaft length	mm / in.	35 / ¹ / ₈	25 / ³¹ / ₃₂	35 / ¹ / ₈	25 / ³¹ / ₃₂	35 / ¹ / ₈	35 / ¹ / ₈	35 / ¹ / ₈	35 / ¹ / ₈	35 / ¹ / ₈
Range of shaft diameter	mm / in.	1.5 - 7 / 0.06 - 0.27								
Voltage	V	24 Volt DC								
Max. power consumption	VA	50								
Air pressure requirement	bar / PSI	6 / 85.2								
Air hose dia.	mm / in.	10 / ³ / ₈								
Weight approx.	kg / lbs.	36 / 79.2	38 / 83.6	36 / 79.2	38 / 83.6	42 / 92.4	42 / 92.4	42 / 92.4	44 / 96.8	44 / 96.8
Dimensions (WxDxH) approx.	mm / in.	360 x 414 x 368 / 14.04 x 16.15 x 14.35								
Feedhose length standard	m / ft.	4 / 13.1								
max.	m / ft.	8 / 26.2								
Number of in-/outputs needed for PLC										
Version „0“ and „P“		3/5	6/8	8/10	16/18	6/7	8/9	10/9	12/11	13/11
Version „EP“		2/1	3/2	–	–	3/1	4/1	5/1	–	–
Additional version „V“		4/6	8/10	10/12	20/22	8/9	11/12	14/13	17/16	19/17

Also suitable for the feeding of: – rotation symmetric parts, such as rivets, bolts, pins, washers, sleeves, etc.

- small components
- balls and much more

The choice of feeding machine for small components will be determined after testing. Therefore, we require a sufficient quantity (approximately 1 liter/0.26 gal.) of the components to be fed.

Included in delivery	Power unit 105535A
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Required accessories

Power cable	Part no.	812587 (EU) / 812295 (US)
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Optional accessories

see page 18



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Filling capacity 1.2 liter – for screws with max. shaft length 50 mm



Filling capacity 1.2 l / 0.32 gal. with PLC	Type	01011 -EP/1.2	01011-2 -EP/1.2	01011-3 -EP/1.2	01011-4 -EP/1.2	–	–
Control unit		PFC100 controller (insulation IP54)					
Filling capacity 1.2 l / 0.32 gal. without PLC	Type	01011 -0/1.2 -P/1.2 -0/1.2V -P/1.2V	01011 -2-0/1.2 -2-P/1.2 -2-0/1.2V -2-P/1.2V	01011 -3-0/1.2 -3-P/1.2 -3-0/1.2V -3-P/1.2V	01011 -4-0/1.2 -4-P/1.2 -4-0/1.2V -4-P/1.2V	01011 -5-0/1.2 -5-P/1.2 -5-0/1.2V -5-P/1.2V	01011 -6-0/1.2 -6-P/1.2 -6-0/1.2V -6-P/1.2V
Control unit		PFC100 controller (insulation IP54)					
Filling capacity 1.2 l / 0.32 gal. without PLC integrated version with regulation of the feeder controller directly via DEPRAG - PLC)	Type	01011i -0/1.2 -P/1.2 -0/1.2V -P/1.2V	01011i -2-0/1.2 -2-P/1.2 -2-0/1.2V -2-P/1.2V	01011i -3-0/1.2 -3-P/1.2 -3-0/1.2V -3-P/1.2V	01011i -4-0/1.2 -4-P/1.2 -4-0/1.2V -4-P/1.2V	01011i -5-0/1.2 -5-P/1.2 -5-0/1.2V -5-P/1.2V	01011i -6-0/1.2 -6-P/1.2 -6-0/1.2V -6-P/1.2V
Control unit		PFCi100 controller (insulation IP54)					
Amount of connectable drivers		1	2	3	4	5	6
Feed rate	parts/min	25	2x12	3x8	4x6	5x5	6x4
Filling capacity	liter / gal.	1.2 / 0.32	1.2 / 0.32	1.2 / 0.32	1.2 / 0.32	1.2 / 0.32	1.2 / 0.32
Max. head diameter	mm / in.	16 / 5/8					
Max. shaft length	mm / in.	50 / 1 15/16					
Range of shaft diameter	mm / in.	3 - 7 / 0.118 - 0.276					
Voltage	V	24 Volt DC					
Max. power consumption	VA	150					
Air pressure requirement	bar / PSI	6 / 85.2					
Air hose dia.	mm / in.	10 / 3/8					
Weight approx.	kg / lbs.	40 / 88	46 / 101.2	46 / 101.2	46 / 101.2	48 / 105.6	48 / 105.6
Dimensions (WxDxH) approx.	mm / in.	360 x 414 x 368 / 14.04 x 16.15 x 14.35					
Feedhose length standard	m / ft.	4 / 13.1					
max.	m / ft.	8 / 26.2					
Number of in-/outputs needed for PLC							
Version „0“ and „P“		3/5	6/7	8/9	10/9	12/11	13/11
Version „EP“		2/1	3/1	4/1	5/1	–	–
Additional version „V“		4/6	8/9	11/12	14/13	17/16	19/17
Included in delivery		Power unit 2041061					

Required accessories

Power cable	Part no.	812587 (EU) / 812295 (US)
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Optional accessories

see page 18



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TECHNICAL DATA FEEDING MACHINES VIBRATORY BOWL FEEDERS

Filling capacity 2.5 liter – for screws with max. shaft length 60 mm
– for small components



Filling capacity 2.5 l / 0.66 gal. with PLC	Type	01011 -EP/2.5	01022 -EP/2.5	-	-	01011-2 -EP/2.5	01011-3 -EP/2.5	01011-4 -EP/2.5	-	-
Control unit		PFC100 controller (insulation IP54)								
Filling capacity 2.5 l / 0.66 gal. without PLC	Type	01011 -0/2.5 -P/2.5 -0/2.5V -P/2.5V	01022 -0/2.5 -P/2.5 -0/2.5V -P/2.5V	01012 -0/2.5 -P/2.5 -0/2.5V -P/2.5V	01024 -0/2.5 -P/2.5 -0/2.5V -P/2.5V	01011 -2-0/2.5 -2-P/2.5 -2-0/2.5V -2-P/2.5V	01011 -3-0/2.5 -3-P/2.5 -3-0/2.5V -3-P/2.5V	01011 -4-0/2.5 -4-P/2.5 -4-0/2.5V -4-P/2.5V	01011 -5-0/2.5 -5-P/2.5 -5-0/2.5V -5-P/2.5V	01011 -6-0/2.5 -6-P/2.5 -6-0/2.5V -6-P/2.5V
Control unit		PFC100 controller (insulation IP54)								
Filling capacity 2.5 l / 0.66 gal. without PLC (integrated version with regulation of the feeder controller directly via DEPRAG - PLC)	Type	01011i -0/2.5 -P/2.5 -0/2.5V -P/2.5V	01022i -0/2.5 -P/2.5 -0/2.5V -P/2.5V	01012i -0/2.5 -P/2.5 -0/2.5V -P/2.5V	01024i -0/2.5 -P/2.5 -0/2.5V -P/2.5V	01011i -2-0/2.5 -2-P/2.5 -2-0/2.5V -2-P/2.5V	01011i -3-0/2.5 -3-P/2.5 -3-0/2.5V -3-P/2.5V	01011i -4-0/2.5 -4-P/2.5 -4-0/2.5V -4-P/2.5V	01011i -5-0/2.5 -5-P/2.5 -5-0/2.5V -5-P/2.5V	01011i -6-0/2.5 -6-P/2.5 -6-0/2.5V -6-P/2.5V
Control unit		PFCi100 controller (insulation IP54)								
Amount of connectable drivers		1	2	2	4	2	3	4	5	6
Feed rate	parts/min	40	2x40	2x20	4x20	2x20	3x13	4x10	5x8	6x6
Filling capacity	liter / gal.	2.5 / 0.66	2.5 / 0.66	2.5 / 0.66	2.5 / 0.66	2.5 / 0.66	2.5 / 0.66	2.5 / 0.66	2.5 / 0.66	2.5 / 0.66
Max. head diameter	mm / in.	16 / 5/8	14 / 35/64	16 / 5/8	14 / 35/64	16 / 5/8	16 / 5/8	16 / 5/8	15 / 19/32	16 / 5/8
Max. shaft length	mm / in.	60 / 2 23/64								
Range of shaft diameter	mm / in.	4 - 8 / 5/32 - 5/16								
Voltage	V	24 Volt DC								
Max. power consumption	VA	150								
Air pressure requirement	bar / PSI	6 / 85.2								
Air hose dia.	mm / in.	10 / 3/8								
Weight approx.	kg / lbs.	60 / 132								
Dimensions (WxDxH) approx.	mm / in.	547 x 600 x 294 / 21.33 x 23.4 x 11.5								
Feedhose length standard	m / ft.	4 / 13.1								
max.	m / ft.	8 / 26.2								
Number of in-/outputs needed for PLC										
Version „0“ and „P“		3/5	6/8	8/10	16/18	6/7	8/9	10/9	12/11	13/11
Version „EP“		2/1	3/2	-	-	3/1	4/1	5/1	-	-
Additional version „V“		4/6	8/10	10/12	20/22	8/9	11/12	14/13	17/16	19/17

Also suitable for the feeding of: – rotation symmetric parts, such as rivets, bolts, pins, washers, sleeves, etc.
– small components
– balls and much more

The choice of feeding machine for small components will be determined after testing. Therefore, we require a sufficient quantity (approximately 1 liter/0.26 gal.) of the components to be fed.

Included in delivery	Power unit 2041061
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Required accessories

Power cable	Part no.	812587 (EU) / 812295 (US)
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Optional accessories

	see page 18
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Filling capacity 6.0 liter – for screws with max. shaft length 100 mm

Filling capacity	Type	0511-O/6.0 0511-P/6.0	0511-2-O/6.0 0511-2-P/6.0 0511-2-O/6.0V 0511-2-P/6.0V	0511-3-O/6.0 0511-3-P/6.0 0511-3-O/6.0V 0511-3-P/6.0V	0511-4-O/6.0 0511-4-P/6.0 0511-4-O/6.0V 0511-4-P/6.0V	0511-5-O/6.0 0511-5-P/6.0 0511-5-O/6.0V 0511-5-P/6.0V	0511-6-O/6.0 0511-6-P/6.0 0511-6-O/6.0V 0511-6-P/6.0V
6 liter / 1.6 gal.							
Amount of connectable drivers		1	2	3	4	5	6
Feed rate	parts/min	25	2 x 12	3 x 8	4 x 6	5 x 5	6 x 4
Filling capacity	liter / gal.				6 / 1.6		
Max. head diameter	mm / in.				30 / 1 ³ / ₁₆		
Max. shaft length	mm / in.				100 / 4		
Range of shaft diameter	mm / in.				8 - 16 / 0.315 - 0.63		
Air pressure requirement	bar / PSI				6.3 / 90		
Air hose dia.	mm / in.				10 / ³ / ₈		
Weight (design "O")	kg / lbs.				250 / 550		
Feedhose length standard	m / ft.				4 / 13.1		
max	m / ft.				8 / 26.2		
Number of in-/outputs needed for PLC							
Version "O" and "P"	min.	2/6	5/8	7/10	9/10	11/12	12/12
Version "V"	min.	–	7/10	10/13	13/14	16/17	18/18
Control unit		SZG controller 5-SL (insulation IP54)					

Filling capacity 12.0 liter – for screws with max. shaft length 130 mm

Filling capacity	Type	0511 -O/12 -P/12	0511 -2-O/12 -2-P/12 -2-O/12 V -2-P/12 V	0512 -O/12 -P/12 -O/12 V -P/12 V	0522 -O/12 -P/12	0511 -3-O/12 -3-P/12 -3-O/12 V -3-P/12 V	0511 -4-O/12 -4-P/12 -4-O/12 V -4-P/12 V
12 liter / 3.2 gal							
Amount of connectable drivers		1	2	2	2	3	4
Preferred type for identical amount of spindles			●				
Feed rate	parts/min	20	2 x 10	2 x 11	2 x 20	3 x 7	4 x 5
Filling capacity	liter / gal.	12 / 3.2	12 / 3.2	12 / 3.2	12 / 3.2	12 / 3.2	12 / 3.2
Max. head diameter	mm / in.	40 / 1 ³⁷ / ₆₄	40 / 1 ³⁷ / ₆₄	40 / 1 ³⁷ / ₆₄	30 / 1 ³ / ₁₆	40 / 1 ³⁷ / ₆₄	40 / 1 ³⁷ / ₆₄
Max. shaft length	mm / in.	130 / 5 ¹ / ₈	130 / 5 ¹ / ₈	130 / 5 ¹ / ₈	120 / 4 ²³ / ₃₂	130 / 5 ¹ / ₈	130 / 5 ¹ / ₈
Range of shaft diameter	mm / in.	14-20 / ³⁵ / ₆₄ - ²⁵ / ₃₂	14-20 / ³⁵ / ₆₄ - ²⁵ / ₃₂	14-20 / ³⁵ / ₆₄ - ²⁵ / ₃₂	12-18 / ¹⁵ / ₃₂ - ⁴⁵ / ₆₄	14-20 / ³⁵ / ₆₄ - ²⁵ / ₃₂	14-20 / ³⁵ / ₆₄ - ²⁵ / ₃₂
Air pressure requirement	bar / PSI	6.3 / 90	6.3 / 90	6.3 / 90	6.3 / 90	6.3 / 90	6.3 / 90
Air hose dia.	mm / in.	10 / ³ / ₈	10 / ³ / ₈	10 / ³ / ₈	10 / ³ / ₈	10 / ³ / ₈	10 / ³ / ₈
Weight	kg / lbs				as per customer's specification approx. 500		
Feedhose length standard	m / ft.	4 / 13.1	4 / 13.1	4 / 13.1	4 / 13.1	4 / 13.1	4 / 13.1
max	m / ft.	8 / 26.2	8 / 26.2	8 / 26.2	8 / 26.2	8 / 26.2	8 / 26.2
Number of in-/outputs needed for PLC							
Version "O" and "P"	min.	5/6	8/8	6/7	9/9	11/10	12/10
Version "V"	min.	–	10/10	8/9	–	14/13	16/14
Control unit for vibratory conveyor		Special controller					
Control unit for linear conveyor		Special controller					

TECHNICAL DATA FEEDING MACHINES SWORD FEEDERS

Filling capacity 0.15 liter – for screws with max. shaft length 8 mm

Filling capacity	Type	0811-O/0.15
0.15 liter / 0.04 gal		0811-P/0.15
Amount of connectable drivers		1
Feed rate	parts/min	30
Filling capacity	liter / gal.	0.15 / 0.04
Max. head diameter	mm / in.	5 / ¹³ / ₆₄
Max. shaft length	mm / in.	8 / ⁵ / ₁₆
Range of shaft diameter	mm / in.	1.0 - 2.5 / ³ / ₆₄ - ³ / ₃₂
Air pressure requirement	bar / PSI	6.3 / 90
Air hose dia.	mm / in.	10 / ²⁵ / ₆₄
Weight	kg / lbs	6 / 13.2
Feedhose length	m / ft.	4 / 13.1
standard		
max	m / ft.	5 / 16.4
Number of in-/outputs needed for PLC		
Version "O" and "P"	min.	4/5

Filling capacity 1.5 liter – for screws with max. shaft length 25 mm

Filling capacity	1.5 liter / 0.4 gal						
with PLC, control unit PFC18L Con- troller (insulation IP30)	Type	01811-EP/1.5	-	-	-	-	-
without PLC, without control unit (control via external PLC)	Type	01811-O/1.5 01811-P/1.5	01811-2-O/1.5 01811-2-P/1.5 01811-2-O/1.5V 01811-2-P/1.5V	01811-3-O/1.5 01811-3-P/1.5 01811-3-O/1.5V 01811-3-P/1.5V	01811-4-O/1.5 01811-4-P/1.5 01811-4-O/1.5V 01811-4-P/1.5V	01811-5-O/1.5 01811-5-P/1.5 01811-5-O/1.5V 01811-5-P/1.5V	01811-6-O/1.5 01811-6-P/1.5 01811-6-O/1.5V 01811-6-P/1.5V
Amount of connectable drivers		1	2	3	4	5	6
Feed rate	parts/min	30	2 x 15	3 x 10	4 x 8	5 x 6	6 x 5
Filling capacity	liter / gal.				1.5 / 0.4		
Max. head diameter	mm / in.				12 / ¹⁵ / ₃₂		
Max. shaft length	mm / in.				25 / ⁶³ / ₆₄		
Range of shaft diameter	mm / in.				2 - 6.3 / 0.08 - 0.25		
Voltage	V				24 Volt DC		
Max. power consumption	VA				50		
Air pressure requirement	bar / PSI				6 / 85.2		
Air hose dia.	mm / in.				10 / ³ / ₈		
Dimensions (WxDxH) approx.	mm / in.				408 x 666 x 1223 / 15.9 x 25.97 x 47.7		
Weight (design "O")	kg / lbs	35/77	38/84	40/88	40/88	42/92	42/92
Feedhose length	m / ft.	4/13.1	4/13.1	4/13.1	4/13.1	4/13.1	4/13.1
standard							
max	m / ft.	8/26.2	8/26.2	8/26.2	8/26.2	8/26.2	8/26.2
Number of in-/outputs needed for PLC							
Version "O" and "P"	min.	8/6	11/9	13/12	15/13	17/16	18/17
Version "V"	min.	-	11/9	13/12	15/13	17/16	18/17
Version "EP"	min.	3/1	-	-	-	-	-
Included in delivery (only for type 01811-EP/1.5)	Power unit	105535A			-		
Required accessories (only for type 01811-EP/1.5)							
Power cable	Part no.	812587 (EU) 812295 (US)			-		

Optional accessories	see page 18
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Filling capacity 0.75 / 2.5 liter – maximum permissible nut height 5 mm / 8 mm



Filling capacity	0.75 liter / 0.2 gal.			2.5 liter / 0.66 gal.		
with PLC	Type	01011M -EP/0.75	–	–	01011M -EP/2.5	–
Control unit	PFC100 controller (insulation IP54)					
without PLC	Type	01011M -0/0.75 -P/0.75 -0/0.75V -P/0.75V	01012M -0/0.75 -P/0.75 -0/0.75V -P/0.75V	01024M -0/0.75 -P/0.75 -0/0.75V -P/0.75V	01011M -0/2.5 -P/2.5 -0/2.5V -P/2.5V	01012M -0/2.5 -P/2.5 -0/2.5V -P/2.5V
Control unit	PFC100 controller (insulation IP54)					
without PLC	Type	01011iM -0/0.75 -P/0.75 -0/0.75V -P/0.75V	01012iM -0/0.75 -P/0.75 -0/0.75V -P/0.75V	01024iM -0/0.75 -P/0.75 -0/0.75V -P/0.75V	01011iM -0/2.5 -P/2.5 -0/2.5V -P/2.5V	01012iM -0/2.5 -P/2.5 -0/2.5V -P/2.5V
(integrated version with regulation of the feeder controller directly via external PLC)						
Control unit	PFCi100 controller (insulation IP54)					
Amount of connectable drivers		1	2	4	1	2
Feed rate	parts/min	40	2x25	4x25	40	2x25
Filling capacity	liter / gal.	0.75 / 0.2	0.75 / 0.2	0.75 / 0.2	2.5 / 0.66	2.5 / 0.66
Across flats	mm / in.	4-8 / ⁵ / ₃₂ - ⁵ / ₁₆	4-8 / ⁵ / ₃₂ - ⁵ / ₁₆	4-8 / ⁵ / ₃₂ - ⁵ / ₁₆	5.5-17 / ⁵ / ₃₂ - ⁴³ / ₆₄	5.5-13 / ⁵ / ₃₂ - ¹ / ₂
Female thread	mm / in.	3-5 / ¹ / ₈ - ³ / ₁₆	3-5 / ¹ / ₈ - ³ / ₁₆	3-5 / ¹ / ₈ - ³ / ₁₆	3-8 / ¹ / ₈ - ⁵ / ₁₆	3-8 / ¹ / ₈ - ⁵ / ₁₆
Max. possible nut height	mm / in.	5 / ³ / ₁₆	5 / ³ / ₁₆	5 / ³ / ₁₆	8 / ⁵ / ₁₆	8 / ⁵ / ₁₆
Voltage	V	24 Volt DC			24 Volt DC	
Max. power consumption	VA	50			150	
Air pressure requirement	bar / PSI	6 / 85.2			6 / 85.2	
Air hose dia.	mm / in.	10 / ³ / ₈			10 / ³ / ₈	
Dimensions (WxDxH) approx.	mm / in.	360 x 414 x 368 / 14.04 x 16.15 x 14.35			547 x 600 x 294 / 21.33 x 23.4 x 11.5	
Number of in-/outputs needed for PLC						
Version „0“ and „P“		3/5	4/6	8/10	3/5	4/6
Version „EP“		2/1	–	–	2/1	–
Additional version „V“		4/6	6/8	10/12	4/6	6/8
Included in delivery		Power unit 105535A			Power unit 2041061	
Required accessories						
Power cable	Part no.	812587 (EU) / 812295 (US)			812587 (EU) / 812295 (US)	

Optional accessories	see page 18
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POWER USAGE

The design of the feeding systems can be made for either 230 volts or for 115 volts of power-connection. For the corresponding maximum usage (in VA) please refer to the listing below.

Unit	Type	010xx-x/0.15	010xx-x/0.75	010xx-x/1.2	010xx-x/2.5	05xx-x/6.0	018xx-x/1.5
Voltage	V	24 Volt DC	24 Volt DC	24 Volt DC		115 or 230	24 Volt DC
Power consumption	VA	50	50	150		550	50

Unit	Type	0811-O/0.15	0811-P/0.15
Power supply	V	not applicable	24
Power consumption	VA	0	10

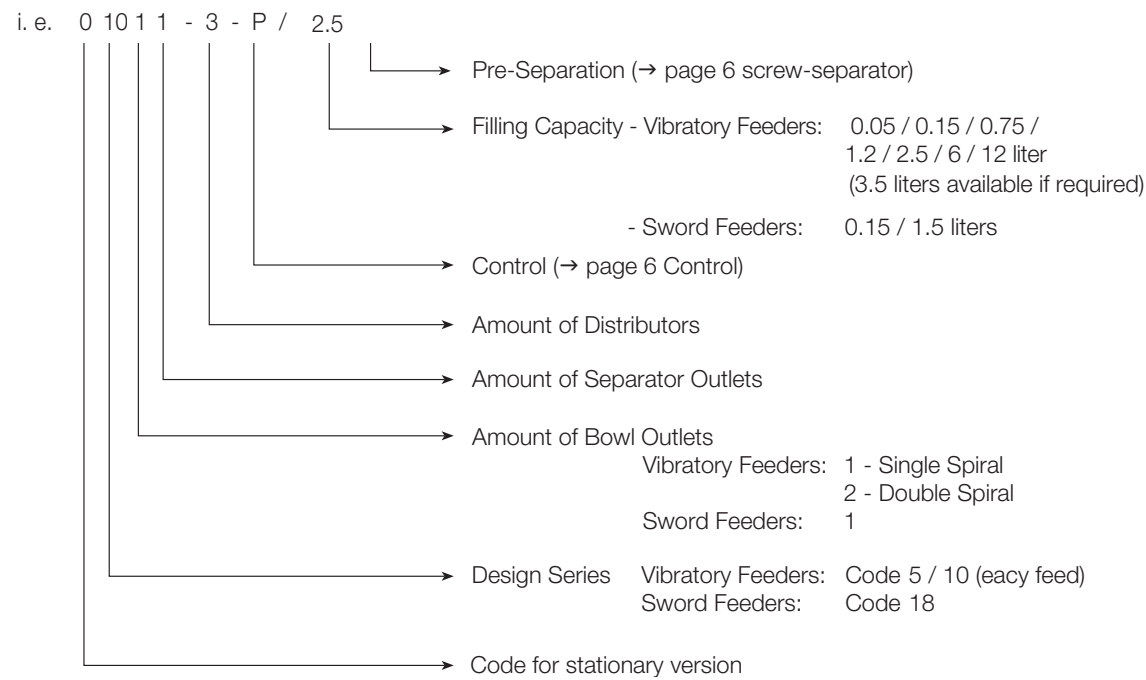
OPTIONAL EQUIPMENT

for feeding systems

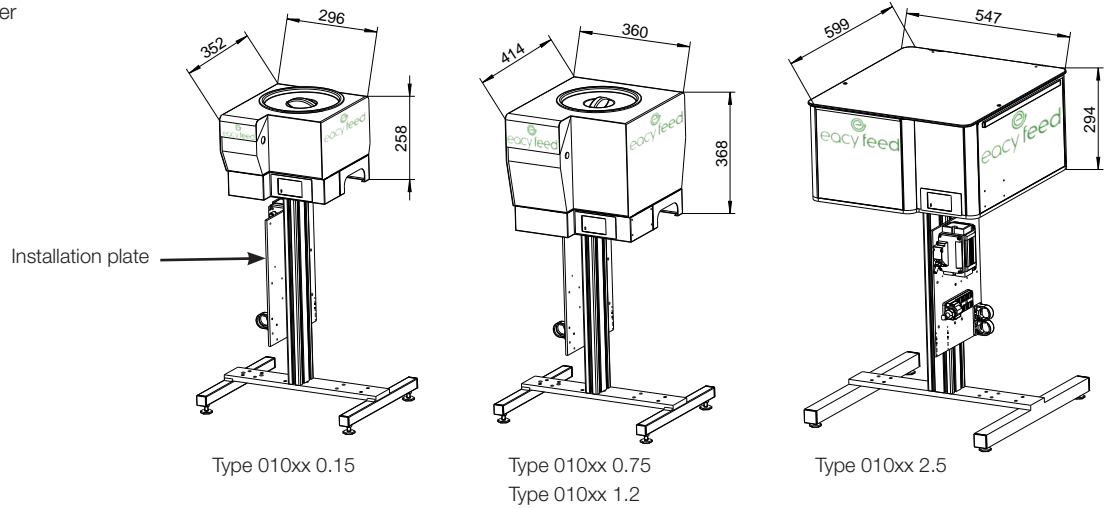
Stationary mouthpiece (standard)
Tilttable mouthpiece
Nosepiece ball type (single)
Nosepiece ball type (double)
Nosepiece split type
Ring proximity switch with impulse extension 100 ms, with connector, cable and connector plug for screw presence control installed and wired
Feeder bowl, coated with polyurethane
Hopper (Catalog D3850E)
Downholder (for screws with washers)
"Semi-pick and place-system"
Set of wheels for stand
Set of wheels for stand in ESD-capable version

for feeding systems with feed bowl volume		0.15 liter	0.75 liter	1.2 liter	1.5 liter	2.5 liter
Fill level indicator	Part no.	414965J	414965A	414965A	420494B	414965D
Stand	Part no.	994449	994449	994449	994449	999309
Retaining plate (holder for power supply)	Part no.	9198574	9198574	9198573	9198574	-

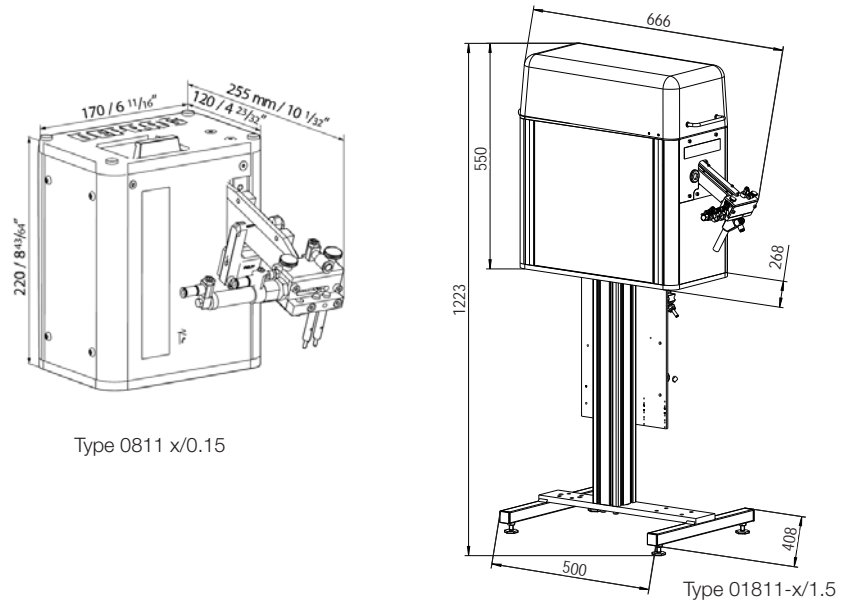
NOMENCLATURE OF FEEDERS



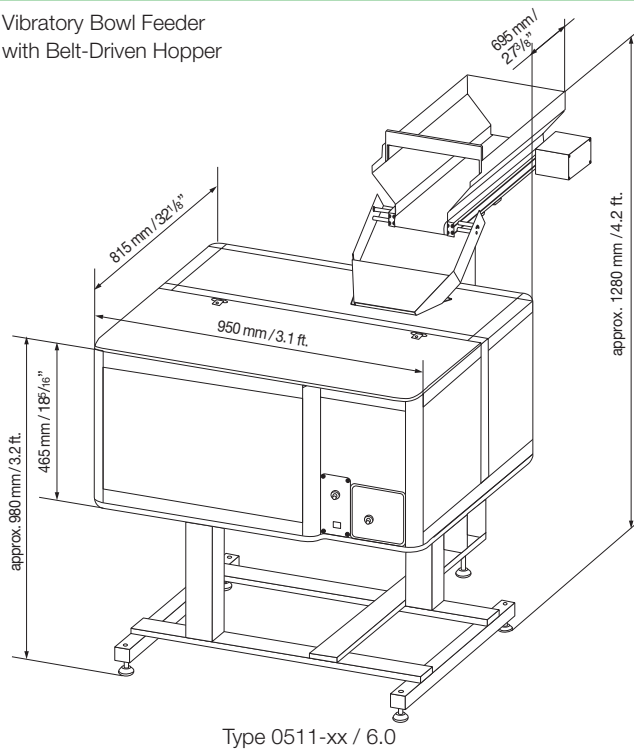
Vibratory Bowl Feeder



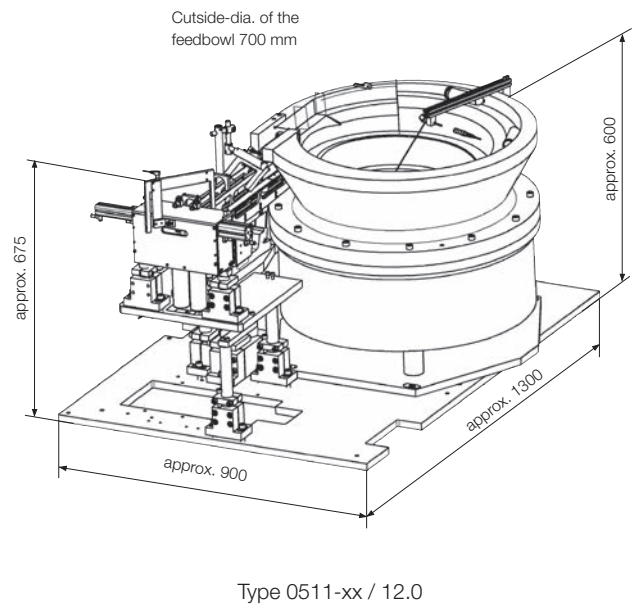
Sword Feeder



Vibratory Bowl Feeder with Belt-Driven Hopper



Vibratory Bowl Feeder



DEPRAG

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CERTIFIED AS PER DIN EN ISO 9001
