

- Screwdriving technology
- Automation**
- Air motors
- Air tools

DEPRAG



NEW

Feeding systems for stationary use

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

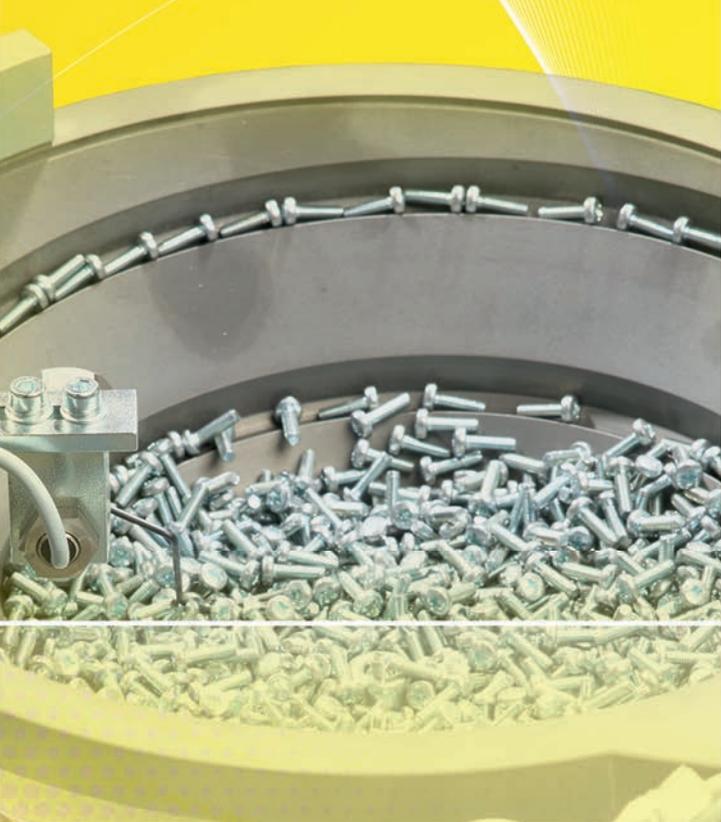
- Approx. 80 % energy savings
- Smart factory/Industry 4.0-capable
- Efficiency and worldwide application - one design for all markets

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.

Feeding Technology

New generation vibratory bowl feeder








e for efficiency

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

Sustainable design!

a for assembly

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

User-friendly operation!

e a c y

c for communication

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

Intelligent automation!

y for yield

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

Reliable assembly!

Efficient and intelligent feeding

The innovative feeder eacy feed provides ideal specifications for the sustainable production of tomorrow: With its approx. 80 % power saving accomplishment the eacy feed is extremely energy efficient. In addition, the smart eacy feed is particularly suitable for the challenges of smart factory/ Industry 4.0.

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



Efficiency and worldwide application

We have developed an innovative feeder in eacy feed which is distinguished by its energy efficiency and countless application possibilities. The 24 V technology of the drive enables worldwide application. All you need is a universal power supply. Country specific variations are a thing of the past. Thanks to the 24 V technology, eacy feed ensures reliable running even in areas with poor network availability.

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

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.

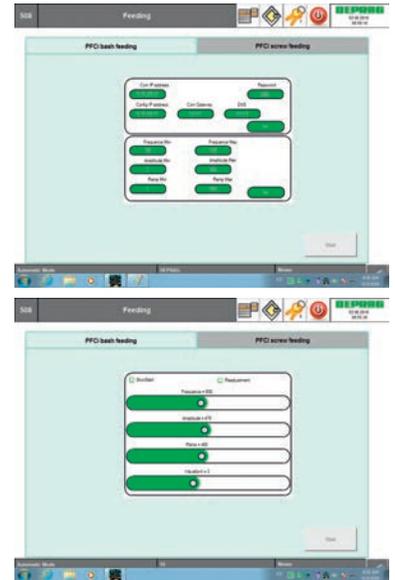
DPU setting options

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

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.

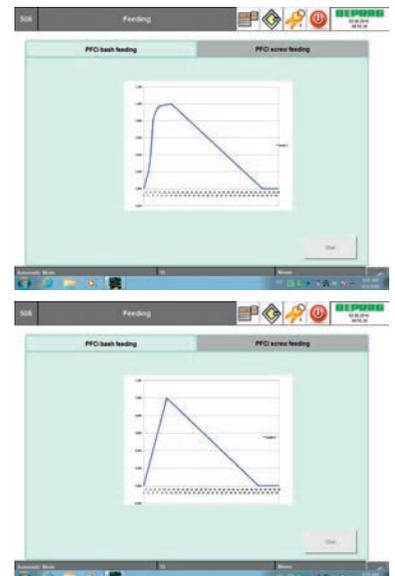
If several operators are using the same feeder at the same time, the efficiency of the process can often be compromised by the varying working speeds of each individual. DEPRAG feeders cleverly adapt to the individual working speeds of each operator. Once entered via the simple display, the specific 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.



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.



FEEDING SYSTEMS FOR STATIONARY USE

■ Integrated sequence control

For stationary applications using screws or screw-similar fasteners, we offer screwfeeding systems with integrated sequence control (our EP version). This design is used if you want an extensively tested and proven system but do not want to use your own PLC or where your PLC has insufficient capacity.

■ Freely programmable

Parts with a multitude of varied geometries can be processed with a freely programmable feed system and the pneumatic and electric equipment based on your requirements.

■ Simple integration and start-up procedure

The integration of your host PLC with DEPRAG stationary screwfeeders is exceptionally simple and easy. Many design details, such as the quick-release feature of the separator or the tiltable or removable housing, simplify handling during start-up or maintenance.

■ Large output capability

DEPRAG feed systems have a particularly large output capability - they accelerate your assembly cycle whilst guaranteeing continued high quality.

■ High reliability

The sophisticated design of all feeders, the use of high-alloyed and heat-treated steels for all mechanically critical components and the required quality of the components to be transported, are the foundation for the high quality of our equipment.

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
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
6.0 l Feed volume	Page 15
12.0 l Feed volume	Page 15

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 Conveyor



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.

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.

Pick-and-Place Feeding



The DEPRAG tape-on-reel feeder is specifically designed for the reliable and accurate feeding of adhesive components, which are supplied on reel tapes.

→ Catalogue D3870E

Tape-on-Reel Feeding



The DEPRAG screw presenter is ideal if you need a quick solution to automate your assembly, but an automatic screw-feeder is not feasible because of the low number of screws to be processed.

In such as case screw presenters are well-suited for the automatic presentation of screws to allow pick-up with a handheld or stationary screwdriver.

→ Catalogue D3840E

Screw Presenter



Do your operating staff frequently have to refill your feeding equipment to stop production running to a halt? Or does your feeder run inconsistently and you would like to optimise the process?

In these situations we recommend the use of our storage devices, such as the DEPRAG belt-driven hopper.

→ Catalogue D3850E

Storage Devices



Different parts and connectors often also require different feeding technologies.

Here you can find a small sample of different components matched with the appropriate DEPRAG feeder:

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



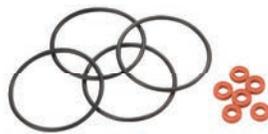
For the processing of pins, we recommend a vibratory feeder. For standard applications we can offer handheld feeding systems. An adapted separator is often used for stationary applications.

Nuts



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

O-Rings



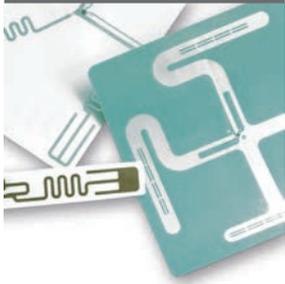
For the processing of o-rings we recommend a vibratory feeder. Our feed systems can be implemented as part of an assembly solution into stationary machines. The o-ring will be supplied to the pick position and then handled and positioned by the assembly system.

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



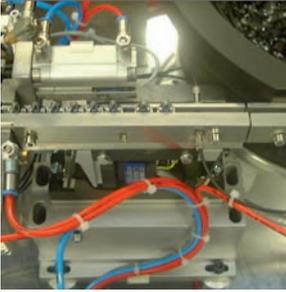
Labels, tags and films are primarily supplied on reels. A DEPRAG tape-on-reel feeder is recommended to lift them using vacuum suction.

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.

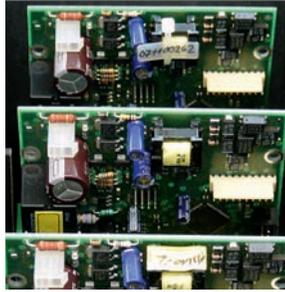
Components requiring gentle handling



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



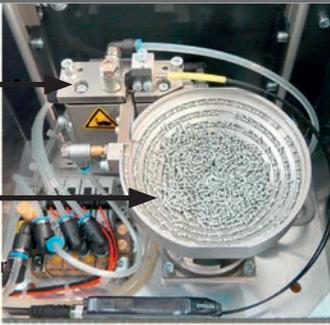
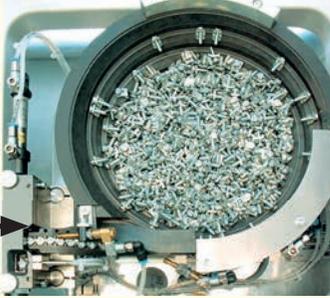
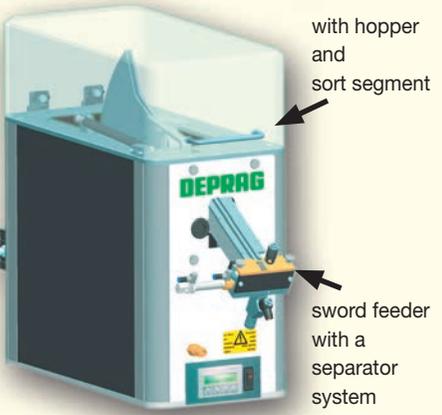
screw separator

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 8

FURTHER ADVANTAGES OF FEEDING SYSTEMS FOR STATIONARY USE

Positioning

By using various sorting elements (so called deflectors), the material for sorting is moved into position and subsequently processed. Material that is not correctly positioned and cannot be turned is directed back into the bowl by additional deflectors.

Efficient Assembly

The high level of in-house production, the use of wear resistant materials, as well as specific coating procedures during the manufacturing of the vibratory bowls, ensures consistently high quality products and the outstanding efficiency of our feeders. DEPRAG vibratory feeders feature an extremely high feed rate of up to 60 parts per minute.

With a so called twin feeder, your production can be streamlined even further. One vibratory bowl can supply either two independent workstations, or, when used with pre-separation of the screw, even multiple screwdriver spindles in an assembly system.

Solutions tailored to customer specific requirements

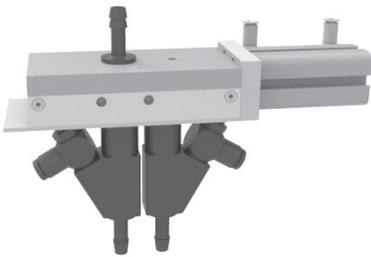
If you wish to integrate a feeder directly into your assembly system and restrictive space conditions have to be considered, then we can adapt our standard devices to your installation conditions. You profit from our unique know-how and moreover, you receive a reliable, fully-tested feeding system at a particularly attractive price-to-performance ratio.

When ordering a customer specific device, you will naturally receive the necessary 3D data to facilitate easy integration into your system.

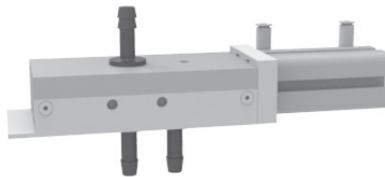
Simplified start-up

Prior to the delivery of your feeder, we carry out an endurance test which simulates your workflow during series production. Each device is delivered with comprehensive documentation, which clearly explains the start-up and operation of the feeder.

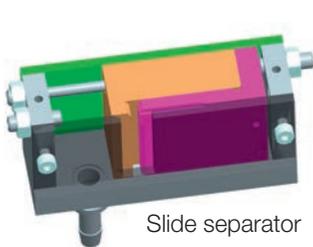
ACCESSORIES



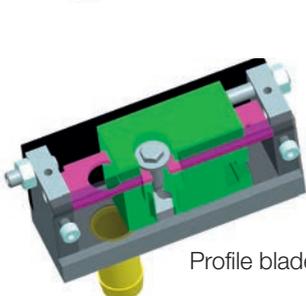
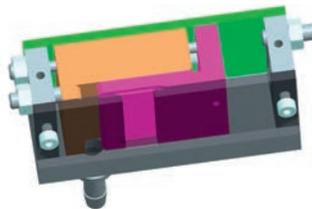
Distributor with hose nozzles for pre-separation of the screw



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 "0") 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 5**
with integrated sequence control is used for bowl sizes of 0.15 l (0.04 gal.)
- **Feeder controller 5 S**
is used for bowl sizes of 0.15 l (0.04 gal.)
- **Feeder controller PFCi100 / PFC100**
is used for bowl sizes of 0.75 l (0.2 gal.), 1.2 l (0.32 gal.) and over 2.5 l (0.66 gal.) capacity

Naturally, all units conform to the protection type no. IP 54. The bowl size of 2.5 l (0.66 gal.) has a soft start feature integrated into the control unit of the vibratory drive.



Feeder controller 5



Feeder controller 5 S



PFC100 controller



PFCi100 controller



Piezo controller

Additional Accessories

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

- Standard mouthpiece
- Tiltable 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 D 3850 E)



Nosepiece

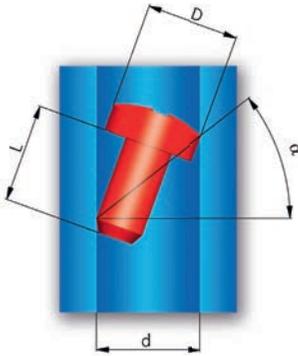


Special nosepiece with mouthpiece

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.

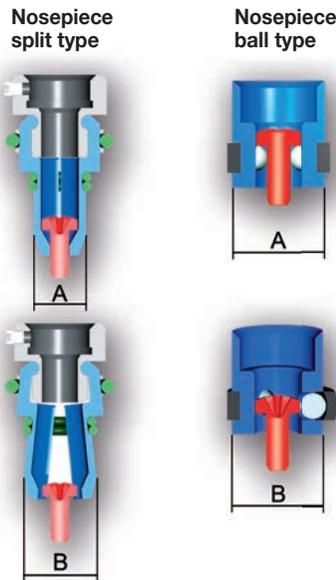
The goal should be a quality grade of 10 ppm ("parts per million"). This means every 100,000 screws there can be 1 bad part.

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.



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 „0“, 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	8/5/16	12/15/32	12/15/32	12/15/32	12/15/32	12/15/32
Max. shaft length	mm / in.	35/1 ³ / ₈	25/3 ¹ / ₃₂	35/1 ³ / ₈	25/3 ¹ / ₃₂	35/1 ³ / ₈	35/1^{3}/_{8}	35/1^{3}/_{8}	35/1^{3}/_{8}	35/1^{3}/_{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	4 / 13.1								
	max.	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)

Optional accessories	
Stand	Part no. 994449
Fill level indicator	Part no. 414965A
Retaining plate	Part no. 9198574

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 ⁵ / 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)

Optional accessories		
Stand	Part no.	994449
Fill level indicator	Part no.	414965A
Retaining plate	Part no.	9198573

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	01022	-	-	01011-2	01011-3	01011-4	-	-
		-EP/2.5	-EP/2.5			-EP/2.5	-EP/2.5	-EP/2.5		
Control unit		PFC100 controller (insulation IP54)								
Filling capacity 2.5 l / 0.66 gal. without PLC	Type	01011	01022	01012	01024	01011	01011	01011	01011	01011
		-0/2.5	-0/2.5	-0/2.5	-0/2.5	-2-0/2.5	-3-0/2.5	-4-0/2.5	-5-0/2.5	-6-0/2.5
		-P/2.5	-P/2.5	-P/2.5	-P/2.5	-2-P/2.5	-3-P/2.5	-4-P/2.5	-5-P/2.5	-6-P/2.5
		-0/2.5V	-0/2.5V	-0/2.5V	-0/2.5V	-2-0/2.5V	-3-0/2.5V	-4-0/2.5V	-5-0/2.5V	-6-0/2.5V
		-P/2.5V	-P/2.5V	-P/2.5V	-P/2.5V	-2-P/2.5V	-3-P/2.5V	-4-P/2.5V	-5-P/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	01022i	01012i	01024i	01011i	01011i	01011i	01011i	01011i
		-0/2.5	-0/2.5	-0/2.5	-0/2.5	-2-0/2.5	-3-0/2.5	-4-0/2.5	-5-0/2.5	-6-0/2.5
		-P/2.5	-P/2.5	-P/2.5	-P/2.5	-2-P/2.5	-3-P/2.5	-4-P/2.5	-5-P/2.5	-6-P/2.5
		-0/2.5V	-0/2.5V	-0/2.5V	-0/2.5V	-2-0/2.5V	-3-0/2.5V	-4-0/2.5V	-5-0/2.5V	-6-0/2.5V
		-P/2.5V	-P/2.5V	-P/2.5V	-P/2.5V	-2-P/2.5V	-3-P/2.5V	-4-P/2.5V	-5-P/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)

Optional accessories	
Stand	Part no. 999309
Fill level indicator	Part no. 414965D

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

Filling capacity	Type	0511-O/6.0	0511-2-O/6.0	0511-3-O/6.0	0511-4-O/6.0	0511-5-O/6.0	0511-6-O/6.0
6 liter /		0511-P/6.0	0511-2-P/6.0	0511-3-P/6.0	0511-4-P/6.0	0511-5-P/6.0	0511-6-P/6.0
1.6 gal.			0511-2-O/6.0V	0511-3-O/6.0V	0511-4-O/6.0V	0511-5-O/6.0V	0511-6-O/6.0V
			0511-2-P/6.0V	0511-3-P/6.0V	0511-4-P/6.0V	0511-5-P/6.0V	0511-6-P/6.0V
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 IP 54)					

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

Filling capacity	Type	0511	0511	0512	0522	0511	0511
12 liter /		-O/12	-2-O/12	-O/12	-O/12	-3-O/12	-4-O/12
3.2 gal		-P/12	-2-P/12	-P/12	-P/12	-3-P/12	-4-P/12
			-2-O/12 V	-O/12 V		-3-O/12 V	-4-O/12 V
			-2-P/12 V	-P/12 V		-3-P/12 V	-4-P/12 V
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 - ¹⁵ / 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 0.15 liter / 0.04 gal	Type	0811-O/0.15 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 standard	m / ft.	4 / 13.1
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	Type	0811-O/1,5 0811-P/1,5 0811-EP/1,5	0811-2-O/1,5 0811-2-P/1,5 0811-2-O/1,5V 0811-2-P/1,5V	0811-3-O/1,5 0811-3-P/1,5 0811-3-O/1,5V 0811-3-P/1,5V	0811-4-O/1,5 0811-4-P/1,5 0811-4-O/1,5V 0811-4-P/1,5V	0811-5-O/1,5 0811-5-P/1,5 0811-5-O/1,5V 0811-5-P/1,5V	0811-6-O/1,5 0811-6-P/1,5 0811-6-O/1,5V 0811-6-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.	15/0.4					
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					
Air pressure requirement	bar / PSI	6.3/90					
Air hose dia.	mm / in.	10 ³ / ₈					
Weight (design "O")	kg / lbs	35/77	38/84	40/88	40/88	42/92	42/92
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.	6/19.7*	6/19.7	6/19.7	6/19.7	6/19.7	6/19.7
Number of in-/outputs needed for PLC Version "O" and "P"	min.	4/5	7/7	10/9	11/9	14/11	15/11
Version "V"	min.	–	8/9	11/12	12/13	15/16	16/17
Version "EP"	min.	1/1	–	–	–	–	–

* longer hose lengths reduce maximum attainable feed rate

TECHNICAL DATA NUT FEEDERS (VIBRATORY BOWL FEEDERS)

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	01024M -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	01024iM -0/2.5 -P/2.5 -0/2.5V -P/2.5V
(integrated version with regulation of the feeder controller directly via DEPRAG - PLC)							
Control unit		PFCi100 controller (insulation IP54)					
Amount of connectable drivers		1	2	4	1	2	4
Feed rate	parts/min	40	2x25	4x25	40	2x25	4x25
Filling capacity	liter / gal.	0.75 / 0.2	0.75 / 0.2	0.75 / 0.2	2.5 / 0.66	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 / ⁷ / ₃₂ - ⁴³ / ₆₄	5.5-13 / ⁷ / ₃₂ - ¹ / ₂	5.5-13 / ⁷ / 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	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	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 „O“ and „P“		3/5	4/6	8/10	3/5	4/6	7/14
Version „EP“		2/1	-	-	2/1	-	-
Additional version „V“		4/6	6/8	10/12	4/6	6/8	11/18
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							
Stand	Part no.	994449			999309		
Fill level indicator	Part no.	414965D			414965D		
Retaining plate	Part no.	9198574			-		

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	05xx-x/0.15	010xx-x/0.75	010xx-x/1.2	010xx-x/2.5	05xx-x/6.0	08xx-x/1.5
Voltage	V	115 or 230	24 Volt DC	24 Volt DC		115 or 230	115 or 230
Power consumption	VA	40	45	150		550	15

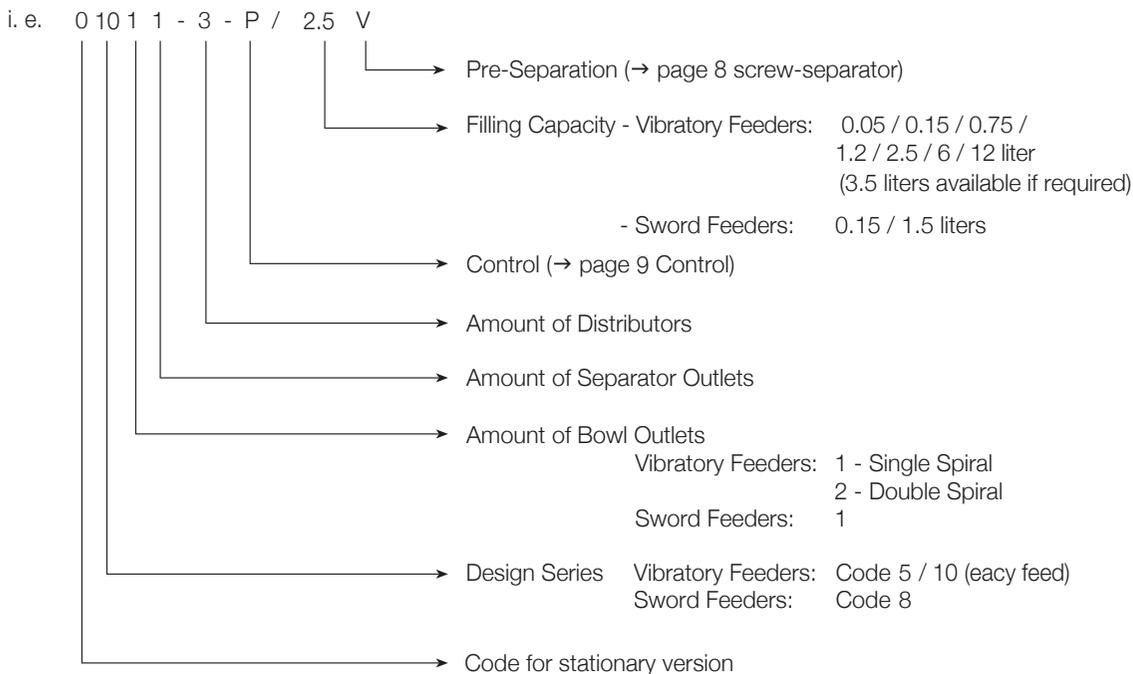
Unit	Type	0811-O/0.15	0811-P/0.15
Power supply	V	not applicable	24
Power consumption	VA	0	10

OPTIONAL EQUIPMENT

for feeding systems

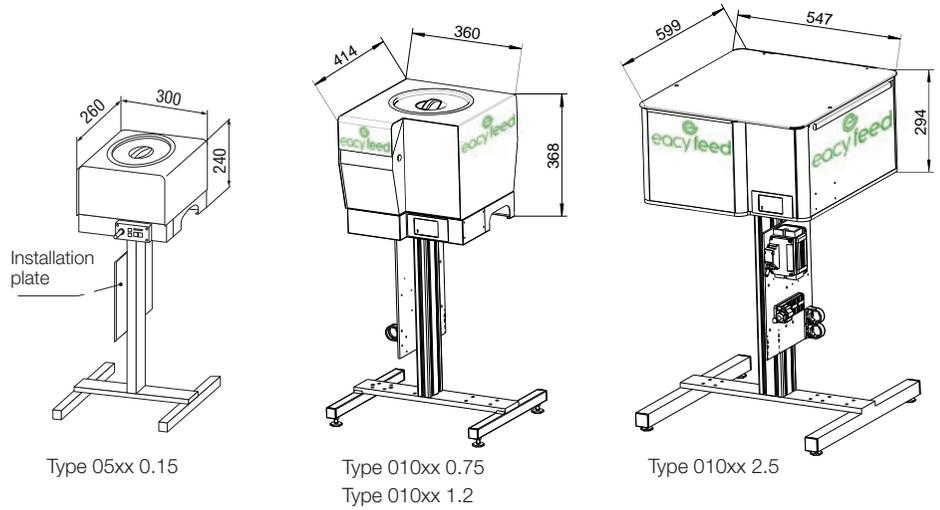
Stationary mouthpiece (standard)	.....
Tiltable mouthpiece	.....
Nosepiece ball type (single)	.....
Nosepiece ball type (double)	.....
Nosepiece split type	.....
Ring proximity switch with impulse extension 100 ms., with connector, cable and connector plug	.....
for screw presence control installed and wired	.....
Feeder fill level indicator	.....
Feeder bowl, coated with polyurethane	.....
Hopper (Catalog D3850E)	.....
Downholder (for screws with washers)	.....
"Semi-pick and place-system"	.....

NOMENCLATURE OF FEEDERS



DIMENSIONS

Vibratory Bowl Feeder

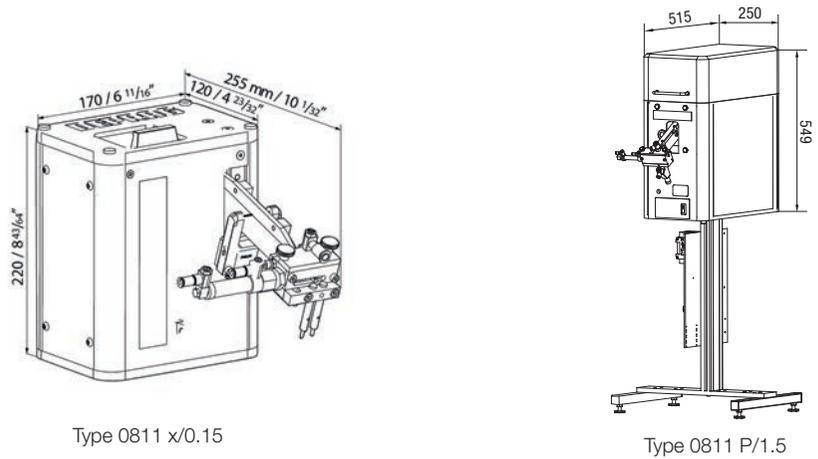


Type 05xx 0.15

Type 010xx 0.75
Type 010xx 1.2

Type 010xx 2.5

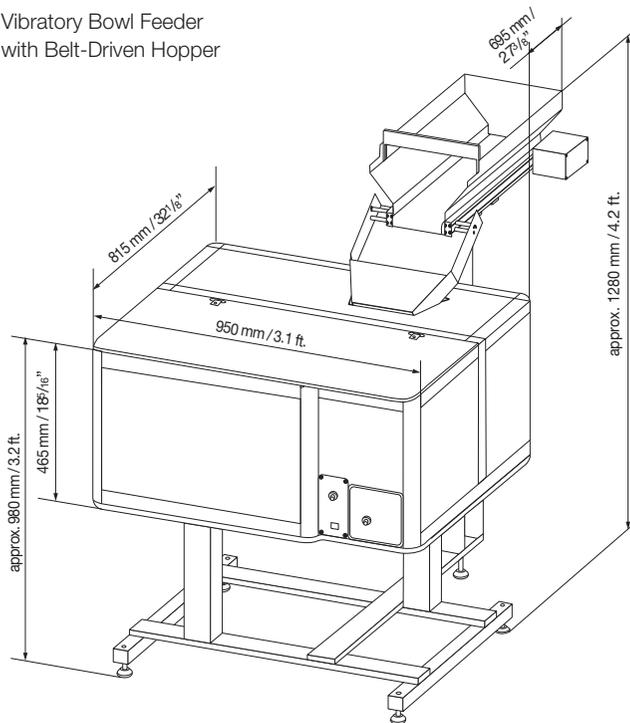
Sword Feeder



Type 0811 x/0.15

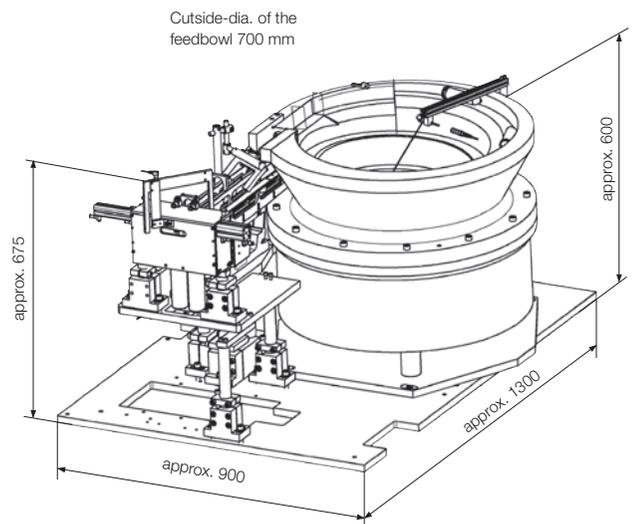
Type 0811 P/1.5

Vibratory Bowl Feeder with Belt-Driven Hopper



Type 0511-xx / 6.0

Vibratory Bowl Feeder



Type 0511-xx / 12.0

DEPRAG

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CERTIFIED AS PER DIN EN ISO 9001
