Screwdriving technology | Automation | Air motors | Air tools

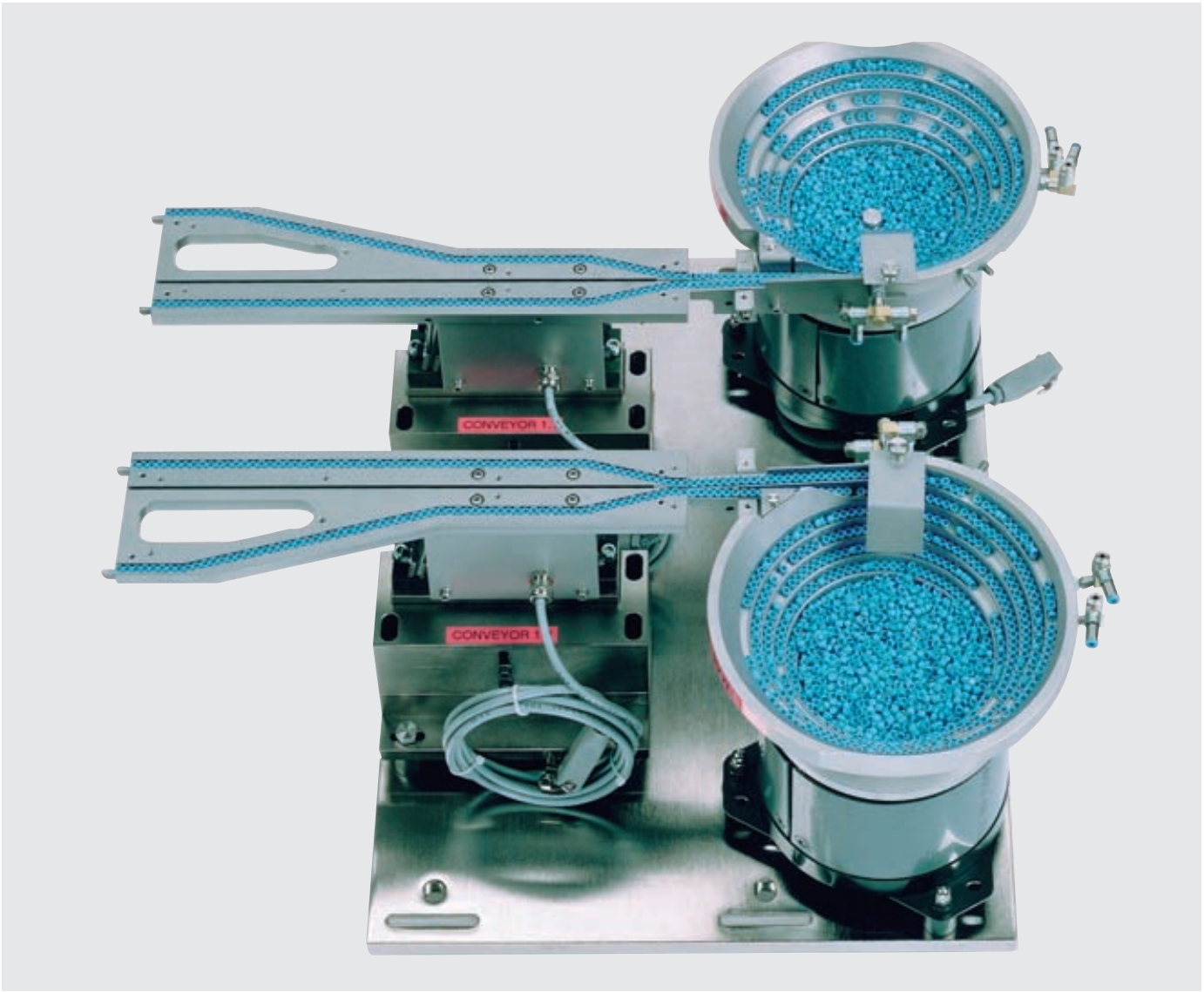
DEPRAG

NEW
12 liter capacity
feeding machine

Stationary Feeding Machines

for the feeding of

- Screws
- Set-Screws
- Bolts
- Rivets
- Nuts
- Small components
- Washers
- O-rings



D 3830 E 8.2008

1. DEPRAG-Feeding Systems for Assembly Machines

The necessary feeding systems are essential for the productivity and availability of automatic Assembly Machines.
Originally designed for shaft-heavy Screws, our new feeders are now able to feed screws of all types, with and without washers, threaded bolts, set-screws, pins, rivets, nuts, washers, o-rings, small components and other parts.

2. Reliability

The high quality construction of our feeders, the use of high-alloy and heattreated steel for crucial components, together with a high screw quality, are the foundation for the high quality of our Assembly Machines.

Even if jamming occurs because of non-specified objects, numerous construction details are integrated to solve problems in seconds. Such as the quick accessibility of the separator or the tiltable and removable housing.

3. Construction

DEPRAG feeders mainly consist of the feeder unit with housing, positioning system, the separator, air connection system, and electronic connection.

Basically, two different types of screwfeed principles are available:

3.1 Vibratory Bowl Feeder

For many years our vibratory drives have proven highly reliable. They are now available in 4 different sizes. The vibratory magnet in connection with a spring-set and the integrated regulator, generates a micro wave movement, which effectively transports the screws. For extremely high feed rate requirement, i.e. for the fast delivery up to four screw exits, a double spiral bowl with two outlets is available. To achieve maximum feedrate, the bowl should be filled to the half full level. The all-around enclosure reduces the noise level of the vibratory magnet.

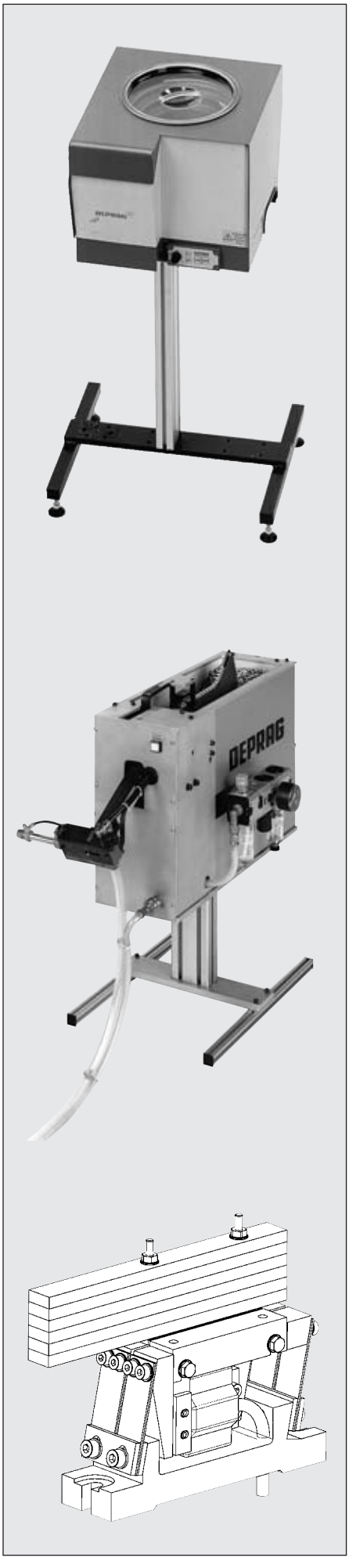
3.2 Sword Feeder

Our new sword feeder offers a real alternative to the Vibratory Bowl Feeder. A pressed-on segment lift-rail moves through the container, which is filled with screws. This rail sorts and lifts the screws and then transport is done by gravity. Items, such as screws, bolts etc. can be transported. Because the screws rest in the container without being in motion, this type of feeder is extremely gentle to the parts. Therefore, this feeder allows the low wear and almost noise-less transport of hardware.

3.3 Linear Conveyor

Linear Conveyors are often used for automatic, stationary feeding applications. That type of conveyors fulfil several functions:
– reduces distance of movement
– allows for parts buffer
– enables an expension of the parts stream

To control a linear conveyor with a rail up to 190 mm / 7½" length, a control unit no. SZG Controller 5 S, is necessary.



3.4 Screw Separator

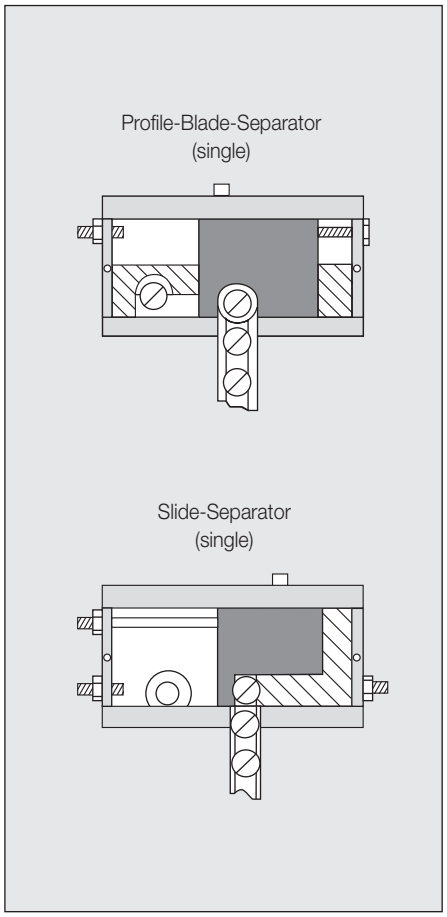
Screws exit feed bowl in a well oriented line to be separated at the end of a retaining rail. Depending on the geometry of the material to be fed (such as screws) different types of separators can be provided.

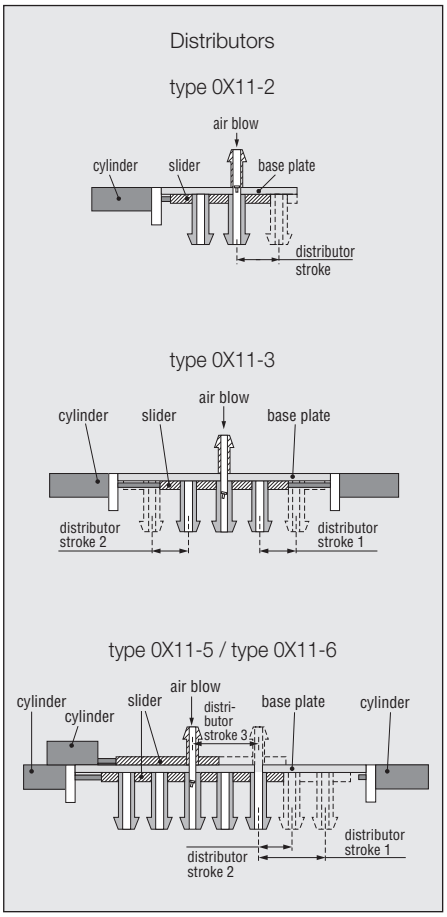
3.5 Distributor

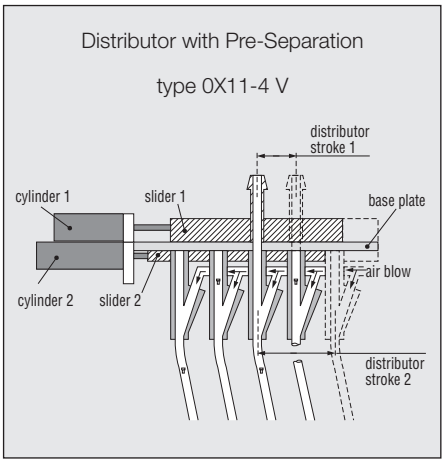
If more than two withdrawal positions (i.e. screwdriver spindles) have to be supplied out of one feeder unit, so-called distributors can be installed below the screw separator. With these distributors, 2, 3, 4, 5 or even 6 channels can be supplied.

To increase the feed rate, those distributors can be operated by so-called pre-separators (version "V"). With such a system, the hardware separator can be operated parallely 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).







3.6 Control

The standard version (version ”0”) of our feed systems does not include pneumatic valves or a cycle-control. The vibratory feeder bowl includes the integrated control unit. The necessary pneumatics, as well as cycle control are the necessary components of a complete assembly unit. If components are ordered, the corresponding pneumatic- and function diagrams are being made available.

To keep construction investment to a minimum and to simplify installation, all feeder units can be supplied with pneumatic valves. The wiring is then included up to the I/O Bus (version ”P”). Again, if components are being delivered, we will provide an I/O listing.

The series ”P” includes all necessary valves for the operation of the screwfeeding machine.

The third available series with the designation ”EP” offers screwfeeding machines with 1 through 4 outlets, and includes a pneumatic and electronic sequence control. To feed the next screw, only a 24 V signal is necessary. This allows that customer’s PLC can be smaller and that no programming is necessary for the screw feeding. Therefore, the series ”EP” is an especially economical and operationally safe solution, which should be given preference.

3.7 Control Units

For the control of our vibratory drives, three different control units are offered.

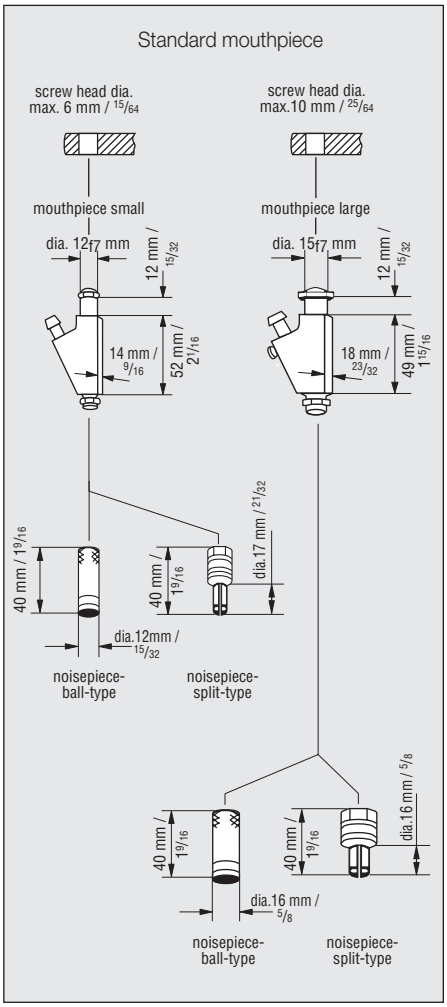
- type SZG controller 5
  with integrated sequence control
  is used for bowl sizes of 0.15 l
  (0.04 gal.) and 0.75 l (0.2 gal.)
- type SZG controller 5 S
  is used for bowl sizes of 0.15 l
  (0.04 gal.) and 0.75 l (0.2 gal.)
- type SZG controller 5-SL
  for bowl sizes over 2.5 l (0.66 gal.)
  capacitiy

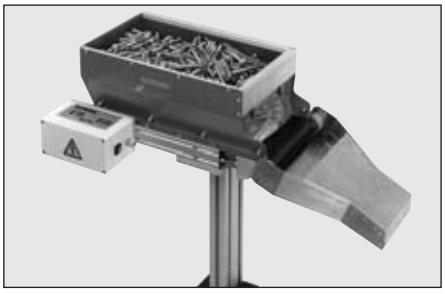
Naturally, all units conform to the protection type no. IP 54. The bowl size of 2.5 l (0.66 gal.) has a soft start feature integrated into the control unit of the vibratory drive.

3.8 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
– Special Nosepiece
– Ring Proximity Switch
  for Screw-Presence Control
– Fill-Level Indicator
– Feeder Stand
– Base for Feeder Stand
– Hopper (Catalog D 3850 E)





4. Screwdriver

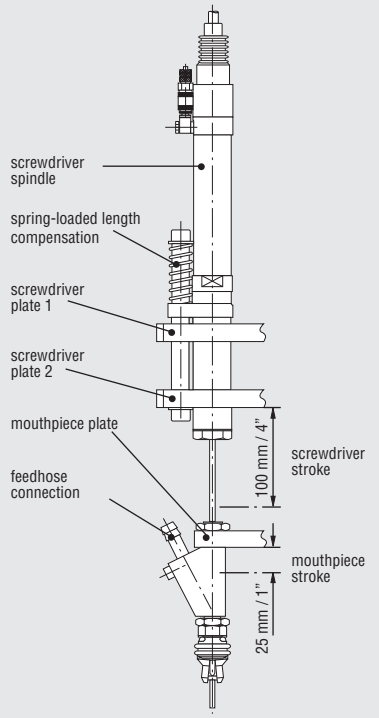
Generally our stationary feeder units are being used in connection with our Screwdriver Spindles. Those spindles are available as the MICROMAT/MINIMAT Control Screwdriver Spindles, as SENSOMAT, as Screwdriver Spindles with Piezo Quartz Inline Torque Sensors or as EC Screwdriver Spindles. Those screwdriver spindles with their preset torque, are more accurate as any subsequent testing method. The construction and the high manufacturing quality guarantee a high up-time even in rugged work area's. The multitude of design options and the different power output possibilities offer a solution for all of your assembly applications.

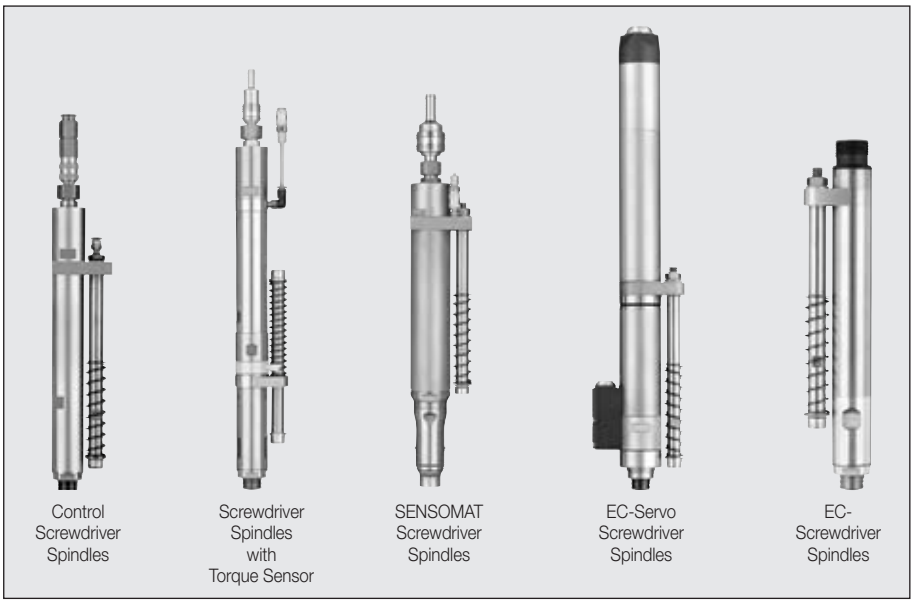
Further information can be found in our catalogs:

- D 3120 E Screwdriver Spindles
- D 3130 E Control Screwdriver Spindles
- D 3140 E Sensomat Screwdriver Spindles
- D 3150 E Screwdriver Spindles with integrated Piezo Quartz Torque Sensor
- D 3160 E EC-Servo Screwdriver Spindles
- D 3165 E MICROMAT-E/MINIMAT-E, EC-Screwdriver Spindles

In connection with the corresponding mouthpieces and the necessary screwdriver plates, all DEPRAG Screwdriver Spindles are best suited for the automatic screw-assembly.

Combination of screwdriver spindle with feed system





5. Selection Criterial

5.1 Transport Principle

If there are difficult screw dimensions, or special requirements in regard to feedrate, the use of a vibratory Screwfeeder is recommended.

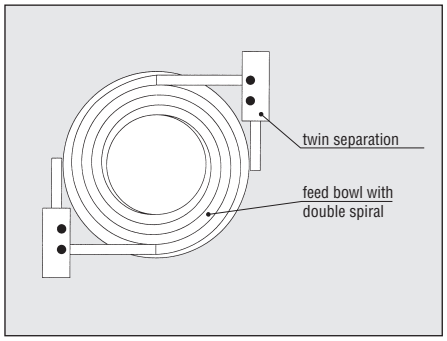
For large fasteners or very long screws, a combination of a vibratory screwfeeder with a subsequent linear conveyor is the preferential handling method.

A sword-feeder is used, if an especially gentle treatment of the fastener is required. However, the screw-geometry must be suitable for this transport principle to be applied (a vibratory feeder should be used for countersunk screws).

5.2 Feed Capacity

A major reason for the correct choice is the required feed capacity for Multi-Spindle Units. The actual obtainable feedrate depends on the dimension of the feedable hardware. The stated feedrate specifications are therefore only for general reference. Starting with the available total cycle time, partial time periods have to be deducted where not feeding commences. Such as screwdriving time and approximately 1 second for the up stroke. The remaining time and the stated feeder rate provides the basis for necessary feeder choice, as well as the amount of units needed.

For extreme high cycle time requirement on 4-Spindle Units, we provide a vibratory bowl with double spiral and two double separators, with a feeding rate of up to 100 screws per minute, provided screws have good feed dimensions.



Through a parallel pre-separator used during the screwdriving time, the available time period for the actual feeding process can be extended and thereby the feedrate requirement can be reduced.

5.3 Design Sizes

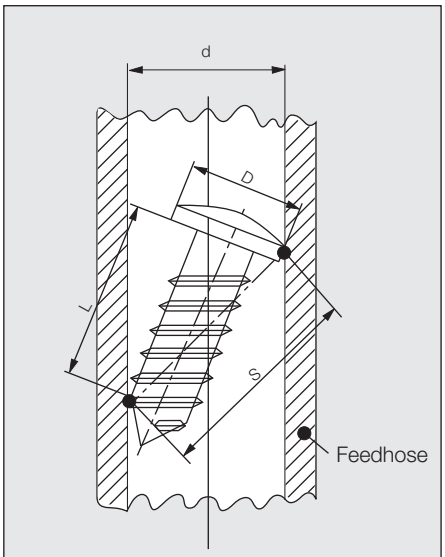
Decisive for the choice of the required design size is solely the dimensions of the feedable hardware.

5.4 Hardware Dimensions

For the feeding of all hardware through corresponding standard round I.D. feedhoses, basically all cylindrical shaped parts are suitable, which correspond to the requirements stated below. All stated requirements are the basis for all hardware, even if the example is shown for simplification only for screws.

This catalog's technical data show the allowable dimensions of screws and nuts to be processed in a feeding system.

For larger dimensions, a custom solution may be possible. If necessary, please contact your DEPRAG Representative (for example: M 12 x 70 Screw with a head diameter of 25 mm).
Also, for special applications, such as the feeding of nuts, custom profile feedhoses are being used.



Feeding Criteria:

$\frac{d}{s} < 0.866$

d ~ D + 0.5 mm

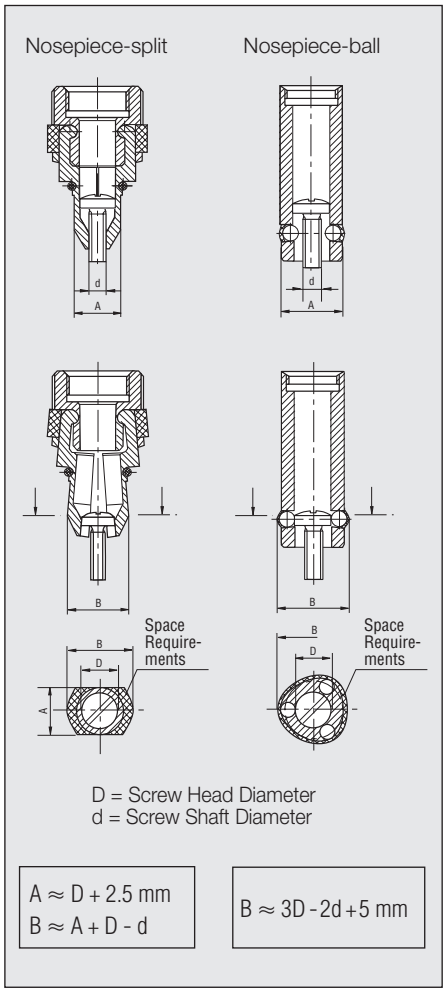
Directive Formula:

L > D + 2 mm

D = Screw Head Diameter
L = Screw Shaft Length
S = Tilting Dimension
d = I. D. Feedhose

5.5 End Tooling

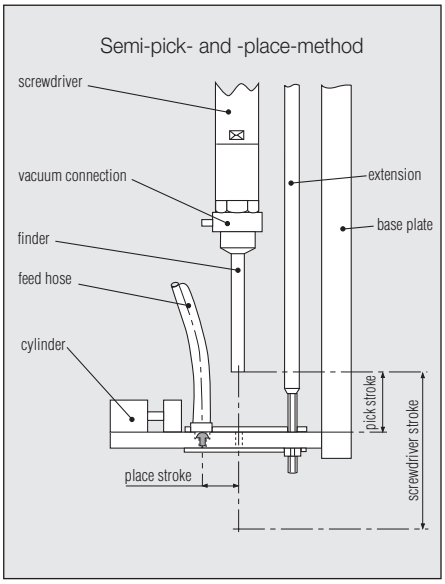
After the feeding through the feedhose, the screw will be positioned over the mouthpiece and nosepiece at the screw hole. According to the available access conditions, the fitting end tooling, i.e. nosepiece split type will be used.



If the measurements of the fastener do not allow feeding through a feedhose, a "Pick- and Place-Procedure" can be used, where the fastener is picked from an outflow position of the feeding system. The fastener is picked-up by vacuum suction and/or a magnetic bit. For this procedure, a horizontal slide-movement and a vertical pickup-stroke of the screwdriving system is necessary.

In order to overcome distances between the vibratory bowl and the pickup position, the fasteners can be transported by a linear-conveyor or a belt-conveyer.

If the screw dimensions allow feeding through a feedhose, but the place conditions on the part do not allow the positioning over mouthpiece and nosepiece, the screw can be processed in a so-called "Semi-Pick- and Place System", where the screw will be fed into a pick-slide which is positioned directly under the screwdriver spindles. With an additional pick-stroke, the screw can be lifted and assembled.



5.6 Hardware Quality

For the complete usefulness of all feeders, the quality of the feedable hardware is very important. Not always is the allowable tolerance of 3 % sufficient. Higher quality directly improves the feeder operation. For automatic assembly machines a quality rate of 100, if possible 1000 is required. (quality rate = Good/bad screw)

5.7 Screw Presence Control

Generally we always recommend the use of ring proximity switches for screw presence control. In very critical cases, or even when using pre-separators with distributors, we recommend the use of 2 proximity switches, one immediately after the separator and one at the end of the feedhose. At pick- and place systems, the screw-suction is controlled by a vacuum switch.

5.8 Specifications

To chose the best feeding system, we require beside the model number, the following additional information:

- Voltage/Frequency
- Cycle Time
- Screw Dimension and Screw Type
- Information about accessibility of part (if possible drawing)
- Feedhose length (if longer than 2 m/6.6 ft. is required)

For manufacturing, sample screws (1 liter/ 0.26 gal.) and sample parts are needed.

Technical Data: Screwfeeding Machines (Vibratory Bowl Feeders)

Filling capacity 0.15 liter / 0.04 gal.	**Type**					**0511 -O/0.15 -P/0.15 -EP/0.15***	**0511 -2-O/0.15 -2-P/0.15 -2-O/0.15V -2-P/0.15V -2-EP/0.15***	**0522 -O/0.15 -P/0.15 -EP/0.15***	**0511 -3-O/0.15 -3-P/0.15 -3-O/0.15V -3-P/0.15V -3-EP/0.15***	**0511 -4-O/0.15 -4-P/0.15 -4-O/0.15V -4-P/0.15V -4-EP/0.15***	**0511 -5-O/0.15 -5-P/0.15 -5-O/0.15V -5-P/0.15V**
Amount of connectable Drivers						1	2	2	3	4	5
Preferred Type for identical amount of spindles							●				
Feed Rate	parts/min					60	2 x 25	2 x 60	3 x 17	4 x 13	5 x 10
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 - 2.5/0.039 - 0.099									
Air Pressure Requirement	bar/PSI	6.3/90									
Air Hose dia.	mm/in.	10/3/8									
Weight (design "O")	kg/lbs					15/33	15/33	17/37	15/33	15/33	15/33
Feedhose Length Standard	m/ft.					2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6
max.	m/ft.					5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4
Number of In-/Outputs needed for PLC											
Version "O" and "P"	min.					1/5	4/7	2/8	7/9	8/9	11/11
Version "V"	min.					–	5/9	–	8/12	9/13	12/16
Version "EP"	min.					1/1	2/2	2/2	3/2	4/2	–
Control unit		SZG Controller 5 S (Insulation IP 54) *SZG Controller 5 (Insulation IP 54)									

Filling capacity 0.75 liter / 0.2 gal.	**Type**	**0511 -O/0.75 -P/0.75 -EP/0.75***	**0511 -2-O/0.75 -2-P/0.75 -2-O/0.75V -2-P/0.75V -2-EP/0.75***	**0512 -O/0.75 -P/0.75 -O/0.75V -P/0.75V**	**0522 -O/0.75 -P/0.75 -EP/0.75***	**0511 -3-O/0.75 -3-P/0.75 -3-O/0.75V -3-P/0.75V -3-EP/0.75***	**0511 -4-O/0.75 -4-P/0.75 -4-O/0.75V -4-P/0.75V -4-EP/0.75***	**0512 -4-O/0.75 -4-P/0.75 -4-O/0.75V -4-P/0.75V**	**0524 -O/0.75 -P/0.75**	**0511 -5-O/0.75 -5-P/0.75 -5-O/0.75V -5-P/0.75V**	**0512 -6-O/0.75 -6-P/0.75 -6-O/0.75V -6-P/0.75V**
Amount of connectable Drivers		1	2	2	2	3	4	4	4	5	6
Preferred Type for identical amount of spindles			●				●				
Feed Rate	parts/min	45	2 x 20	2 x 25	2 x 45	3 x 13	4 x 10	4 x 12	4 x 25	5 x 8	6 x 7
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	0.75/0.2
Max. Head Diameter	mm/in.	12/15/32	12/15/32	12/15/32	8/5/16	12/15/32	12/15/32	12/15/32	8/5/16	12/15/32	12/15/32
Max. Shaft Length	mm/in.	35 /13/8									
Range of Shaft Diameter	mm/in.	1.6 - 6.3/0.063 - 0.25									
Air Pressure Requirement	bar/PSI	6.3/90									
Air Hose dia.	mm/in.	10/3/8									
Weight (design "O")	kg/lbs	26/57	26/57	26/57	29/64	29/64	29/64	30/66	30/66	30/66	31/68
Feedhose Length Standard	m/ft.	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6
max.	m/ft.	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4
Number of In-/Outputs needed for PLC											
Version "O" and "P"	min.	1/5	4/7	2/8	2/8	7/9	8/9	6/10	4/14	11/11	10/12
Version "V"	min.	–	5/9	4/10	–	8/12	9/13	8/14	–	12/16	12/18
Version "EP"	min.	1/1	2/2	–	2/2	3/2	4/2	–	–	–	–
Control unit		SZG Controller 5 S (Insulation IP 54) *SZG Controller 5 (Insulation IP 54)									

Filling capacity 2.5 liter / 0.66 gal.	**Type**	**0511 -O/2.5 -P/2.5 -EP/2.5**	**0511 -2-O/2.5 -2-P/2.5 -2-O/2.5V -2-P/2.5V -2-EP/2.5**	**0512 -O/2.5 -P/2.5 -O/2.5V -P/2.5V**	**0522 -O/2.5 -P/2.5 -EP/2.5**	**0511 -3-O/2.5 -3-P/2.5 -3-O/2.5V -3-P/2.5V -3-EP/2.5**	**0511 -4-O/2.5 -4-P/2.5 -4-O/2.5V -4-P/2.5V -4-EP/2.5**	**0512 -4-O/2.5 -4-P/2.5 -4-O/2.5V -4-P/2.5V**	**0524 -O/2.5 -P/2.5**	**0511 -5-O/2.5 -5-P/2.5 -5-O/2.5V -5-P/2.5V**	**0512 -6-O/2.5 -6-P/2.5 -6-O/2.5V -6-P/2.5V**
Amount of connectable Drivers		1	2	2	2	3	4	4	4	5	6
Preferred Type for identical amount of spindles			●				●				
Feed Rate	parts/min	40	2 x 20	2 x 25	2 x 40	3 x 12	4 x 10	4 x 12	4 x 20	5 x 8	6 x 7
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	2.5/0.66
Max. Head Diameter	mm/in.	16/5/8	16/5/8	16/5/8	14/35/64	16/5/8	16/5/8	16/5/8	14/35/64	16/5/8	16/5/8
Max. Shaft Length	mm/in.	50 /131/32									
Range of Shaft Diameter	mm/in.	4 - 8/0.157 - 0.315									
Air Pressure Requirement	bar/PSI	6.3/90									
Air Hose dia.	mm/in.	10/3/8									
Weight (design "O")	kg/lbs	61	61	61	61	61	61	62	62	62	63
Feedhose Length Standard	m/ft.	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6
max.	m/ft.	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4
Number of In-/Outputs needed for PLC											
Version "O" and "P"	min.	1/5	4/7	2/8	2/8	7/9	8/9	6/10	4/14	11/11	10/12
Version "V"	min.	–	5/9	4/10	–	8/12	9/13	8/14	–	12/16	12/18
Version "EP"	min.	1/1	2/2	–	2/2	3/2	4/2	–	–	–	–
Control unit		SZG Controller 5-SL (Insulation IP 54)									

Technical Data: Screwfeeding Machines (Vibratory Bowl Feeders)

Filling capacity 6 liter / 1.6 gal.	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
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 liter/ 3.2 gal.	Type	0511 -0/12 -P/12	0511 -2-0/12 -2-P/12 -2-0/12 V -2-P/12 V	0512 -0/12 -P/12 -0/12 V -P/12 V	0522 -0/12 -P/12	0511 -3-0/12 -3-P/12 -3-0/12 V -3-P/12 V	0511 -4-0/12 -4-P/12 -4-0/12 V -4-P/12 V
Amount of connectable Drivers		1	2	2	2	3	4
Preferred type for identical amount of spindles			●				
Feed Rate max.	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		as per customer's specification approx. 500 kg					
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: Screwfeeding Machines (Sword Feeders)

Filling capacity 1.5 liter/ 0.4 gal.	Type	0711-O/1.5 0711-P/1.5 0711-EP/1.5	0711-2-O/1.5 0711-2-P/1.5 0711-2-O/1.5V 0711-2-P/1.5V	0711-3-O/1.5 0711-3-P/1.5 0711-3-O/1.5V 0711-3-P/1.5V	0711-4-O/1.5 0711-4-P/1.5 0711-4-O/1.5V 0711-4-P/1.5V	0711-5-O/1.5 0711-5-P/1.5 0711-5-O/1.5V 0711-5-P/1.5V	0711-6-O/1.5 0711-6-P/1.5 0711-6-O/1.5V 0711-6-P/1.5V
Amount of connectable Drivers		1	2	3	4	5	6
Feed Rate	parts/min	30	2 x 13	3 x 10	4 x 8	5 x 6	6 x 5
Filling capacity	liter/gal.	1.5/0.4	1.5/0.4	1.5/0.4	1.5/0.4	1.5/0.4	1.5/0.4
Max. Head Diameter	mm/in.	12/15/32	12/15/32	12/15/32	12/15/32	12/15/32	12/15/32
Max. Shaft Length	mm/in.	25/63/64	25/63/64	25/63/64	25/63/64	25/63/64	25/63/64
Range of Shaft Diameter	mm/in.	2 - 6.3/0.08-0.25	2 - 6.3/0.08-0.25	2 - 6.3/0.08-0.25	2 - 6.3/0.08-0.25	2 - 6.3/0.08-0.25	2 - 6.3/0.08-0.25
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 (design "O")	kg/lbs	21/46	21/46	22/48	23/51	23/51	24/53
Feedhose Length Standard	m/ft.	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6
max.	m/ft.	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4
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	–	–	–	–	–

Technical Data: Nut Feeders (Vibratory Bowl Feeders)

Filling capacity 0.75 / 2.5 liter - 0.2 / 0.66 gal.	**Type**	**0511M-O/0.75 0511M-P/0.75 0511M-EP/0.75***	**0511M-O/2.5 0511M-P/2.5 0511M-EP/2.5**	**0512M-O/0.75 0512M-P/0.75**	**0512M-O/2.5 0512M-P/2.5**	**0524M-O/0.75 0524M-P/0.75**	**0524M-O/2.5 0524M-P/2.5**
Amount of connectable Drivers		1	1	2	2	4	4
Feed Rate	parts/min	45	40	2 x 25	2 x 25	4 x 25	4 x 20
Filling capacity	liter/gal	0.75/0.2	2.5/0.66	0.75/0.2	2.5/0.66	0.75/0.2	2.5/0.66
Across Flats	mm/in.	4 - 8 / 5/32-5/16	5.5-17/7/32-43/64	5.5 - 8/7/32-5/16	5.5 - 13/7/32-1/2	5.5 - 8/7/32-5/16	5.5 - 13/7/32-1/2
Female Thread	mm/in.	3 - 5/1/8-3/16	3 - 8/1/8-5/16	3 - 5/1/8-3/16	3 - 8/1/8-5/16	3 - 5 /1/8-3/16	3 - 8/1/8-5/16
Max. possible nut height	mm/in.	5/3/16	8/5/16	5/3/16	8/5/16	5/3/16	8/5/16
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 (design "O")	kg/lbs	26/57	58/128	27/59	58/128	30/66	62/136
Feedhose Length Standard	m/ft.	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6	2/6.6
max.	m/ft.	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4	5/16.4
Number of In-/Outputs needed for PLC							
Version "O" and "P"	min.	1/5	1/5	2/8	2/8	4/14	4/14
Version "EP"	min.	1/1	1/1	–	–	–	–
Control unit		SZG Controller 5 S *Controller 5	SZG Controller 5-SL	SZG Controller 5 S	SZG Controller 5-SL	SZG Controller 5 S	SZG Controller 5-SL
Insulation		IP 54	IP 54	IP 54	IP 54	IP 54	IP 54

Technical Data: Feeding Machines for small components (Vibratory Bowl- and Sword Feeders)

Filling capacity 0.75 /1.5 /2.5 liters – 0.2/0.4/0. 66 gal.	**Type**	**0511S-O/0.75 0511S-P/0.75**	**0511S-O/2.5 0511S-P/2.5**	**0711S-O/1.5 0711S-P/1.5**
Amount of Outlets		1	1	1
Feed Rate	parts/min	depends on type of fastener	depends on type of fastener	depends on type of fastener
Fillling capacity	liter/gal	0.75/0.2	2.5/0.66	1.5/0.4
Air Pressure Requirement	bar/PSI	6.3/90	6.3/90	6.3/90
Air Hose dia.	mm/in.	10/3/8	10/3/8	10/3/8
Dimensions W x D x H	mm/in.	360 x 415 x 320 / 14 3/16 x 16 11/32 x 12 5/8	540 x 600 x 300 / 21 1/4 x 23 5/8 x 11 13/16	477 x 171 x 335 / 18 25/32 x 6 3/4 x 13 3/16
Weight (design "O")	kg/lbs.	26/57	61/134	22/48
Number of In-/Outputs needed for PLC				
Version "O" and "P"	min.	depends on feeder series	depends on feeder series	depends on feeder series
Control unit		SZG Controller 5 S	SZG Controller 5-SL	–
Insulation		IP 54	IP 54	–

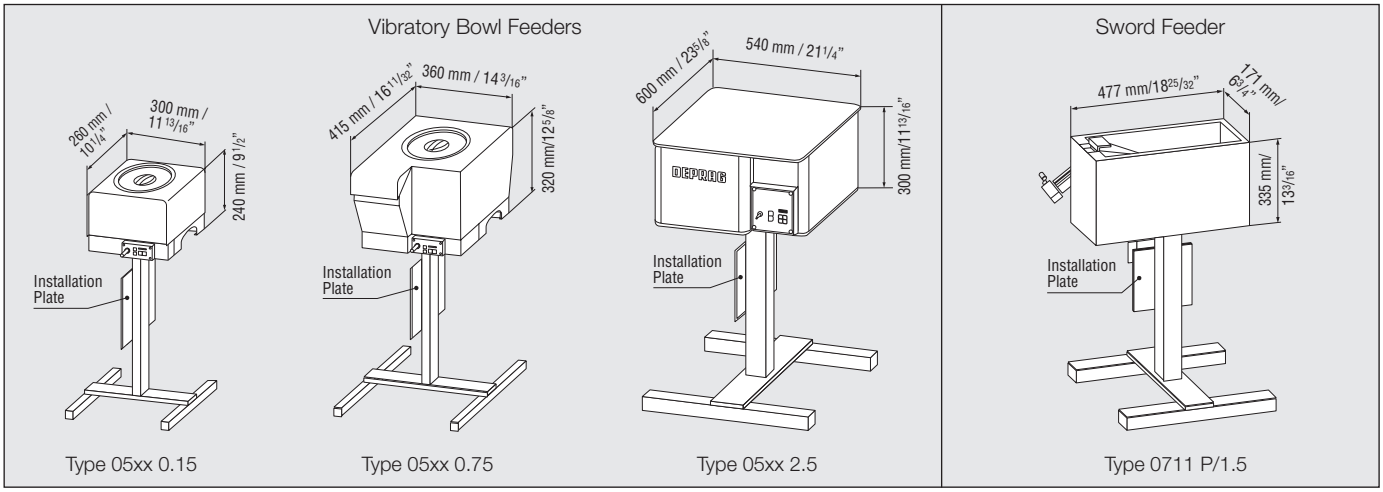
Suitable for the feeding of:
– rotation symmetric parts, such as rivets, bolts, pins, washers, sleeves, etc.
– small components
– balls and much more

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.

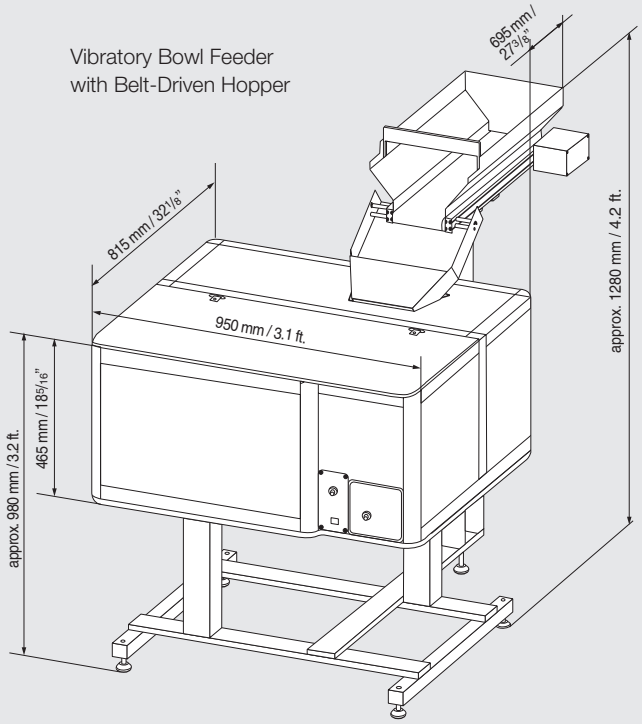
Power Usage

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	Typ	05xx-x/0.15	05xx-x/0.75	05xx-x/2.5	05xx-x/6.0	07xx-x/1.5
Voltage	V	230	230	230	230	230
Power Consumption	VA	30	120	700	700	20
Voltage	V	115	115	115	115	115
Power Consumption	VA	60	240	1400	1400	20

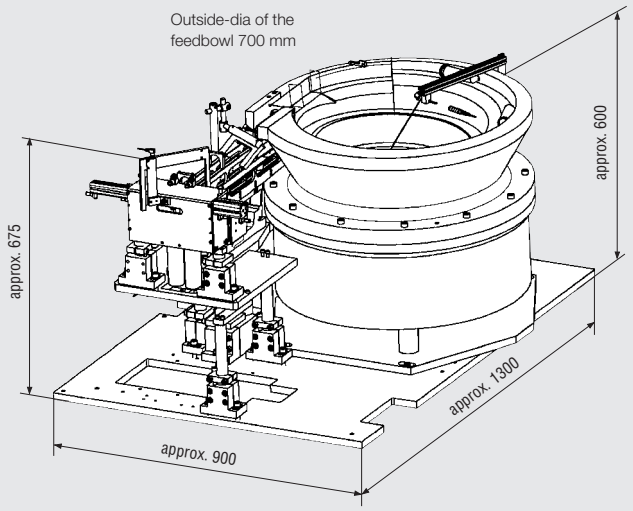


Vibratory Bowl Feeder
with Belt-Driven Hopper



Type 0511-xx / 6.0

Vibratory Bowl Feeder



Type 0511-xx / 12.0

Optional Equipment	Stationary Mouthpiece (standard)
for Screwfeeding Machines	Tiltable Mouthpiece
and Nut-Feeders:	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 D 3850 E)
	Downholder (for screws with washers)
	"Semi-pick and place-system"

Nomenclature: i.e. 0 5 1 1 - 3 - P / 0,15 V

- 0,15 V → Pre-Separation (see Page 3 – 3.5 Distributor)
- 0,15 → Filling Capacity -Vibratory Feeders: 0.15 / 0.75 / 2.5 / 6 / 12 liters (3.5 liters available if required)
  - Sword Feeders: 1.5 liters
- P → Control (see Page 4 - 3.6 Control)
- 3 → Amount of Distributors
- 1 → Amount of Separator Outlets
- 1 → Amount of Bowl Outlets
  - Vibratory Feeders: 1 - Single Spiral
  - Vibratory Feeders: 2 - Double Spiral
  - Sword Feeders: 1
- 5 → Design Series Vibratory Feeders: Code 5
  - Sword Feeders: Code 7
- 0 → Code for stationary version

Neccessary data for a quotation

Company:	Date:
Designer:	Part Description:
Phone:	(Samples/Drawings!)
Fax:	Project name (if any):

Hole Pattern:

Number and position of screw holes (sketch):
Interference on part:
For automatic Feeding:
Screws, Nuts (Samples, Drawings)
Head Diameter: ( ) mm or ( ) in.
Head Height: ( ) mm or ( ) in.
Head Form:
Cap Screw ( ), countersunk ( )
Pan Head ( ),
Shaft Diameter: ( ) mm or ( ) in.
Shaft Length: ( ) mm or ( ) in.

Sketch:

Requirements:

Torque: ( ) Nm or ( ) in.lbs
Assembly +
Transport Time: ( ) seconds
Driving Time: ( ) seconds
Total Cycle Time is Assembly-, + Transport, + Driving Time

Controls:

without magnetic valves and without I/O Bus ( )

with magnetic valves and wired to I/O Bus ( )

with integrated sequence control and valve island- ( )

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