

SCREW FEEDERS

PALAMATIC PROCESS has designed a range of industrial feeders suitable for all your application requirements. With our expertise, we offer you precise dosing equipment, for high, regular or low throughputs, depending on the type of your bulk products.

Screw Feeder



Volumetric Feeder

Volumetric

Capacity: 24 to 6,458 L/h.
Objectives: dosing of any kind of bulk materials

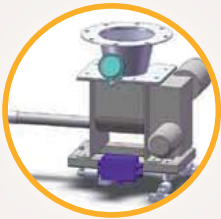
The PALAMATIC PROCESS volumetric screw feeders offer a uniform, constant and controlled feeding of your powders held in a hopper. Thanks to the exchangeable screw design system, our feeders can handle a wide variety of materials with a gentle and precise feeding of free-flowing materials.

VOLUMETRIC FEEDER



The volumetric feeder provides accurate feeding of a wide variety of bulk products. The dosing of ingredients is conducted through a dosing screw which conveys the volume of material to feed. The rotation speed can be handled by a frequency inverter. The feeding precision is about 7 to 8%.

WEIGHT FEEDER

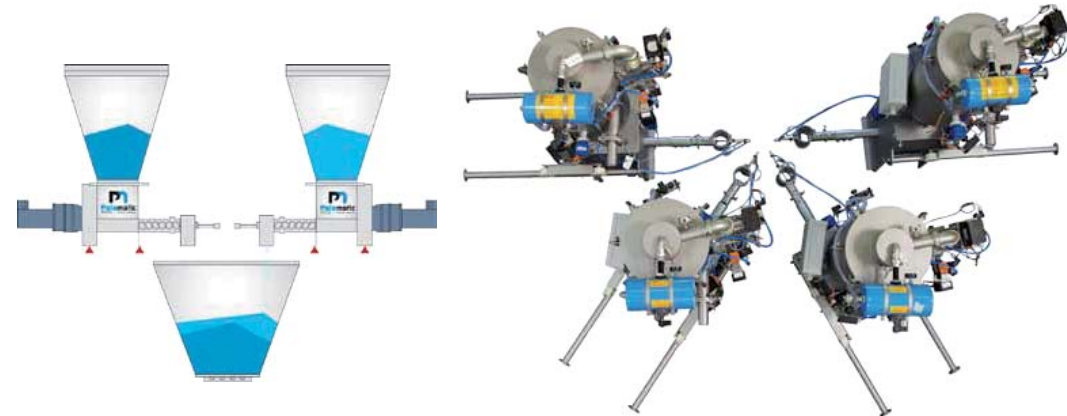


The weight feeder enables an automatic feeding of powdery or bulk materials by batch or in continuous process. The feeders are placed on a stable frame with a very efficient weighing system. This system works in gain-in-weight or loss-in-weight mode and provides a metering accuracy of 1%.



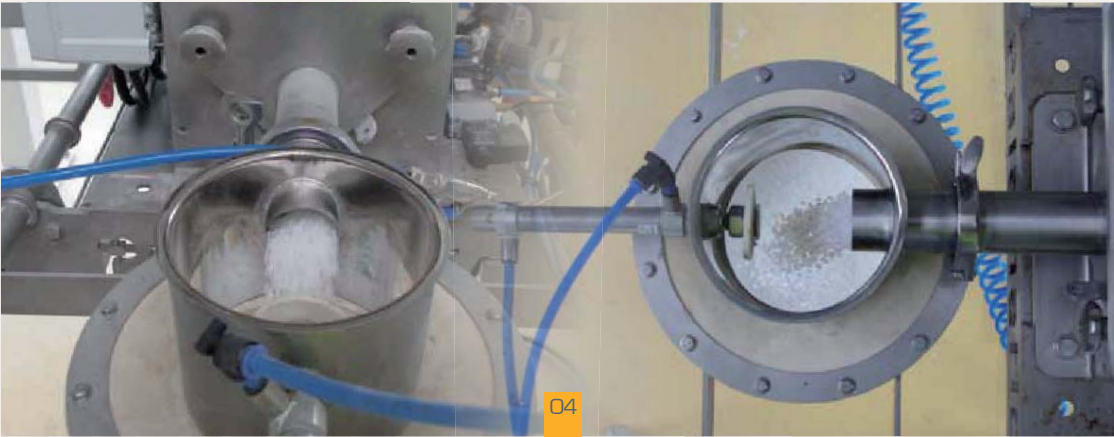
Models	D10	D11	D12	D13
Flow rates*	24 to 142 L/h.	89 to 523 L/h.	261 to 1,438 L/h.	1 174 to 6,458 L/h.
Tube ext. Ø in mm	33.7	42.4	76.1	114.3

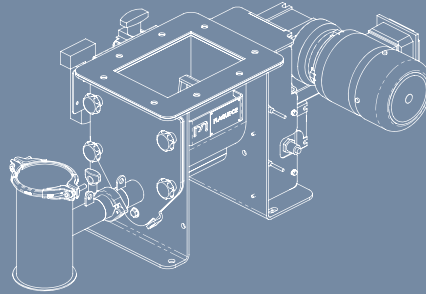
*Frequency range: 45 to 100 Hertz



Dosing assembly
loss-in-weight

Dosing assembly
weight gain

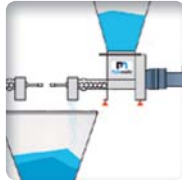




▶ **Hygienic design:** allows an easy access to all parts of the feeder to clean, control and disinfect



▶ **No mechanical friction** on the handled material



▶ **High linear feed**



▶ **Agitator** ensuring a constant feeding volume

Advantages



▶ COMPLETE SCREWS RANGE

- Pigtail



Round section spiral without centre pipe

Light materials, granular products, PVC, pellets, polymers in pellets.

- Ribbon



Ribbon spiral on pipe

Heavy sticky materials, heavy oxides, clays.

- With shaft



Standard screw

Heavy fluid materials, metallic grains.

▶ AGITATORS RANGE



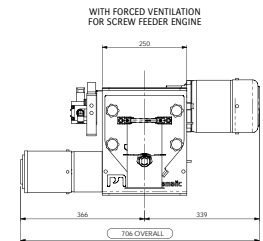
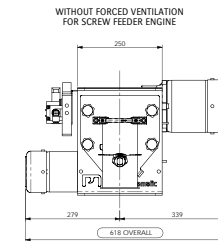
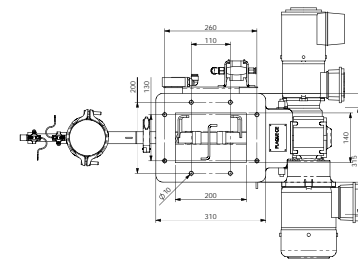
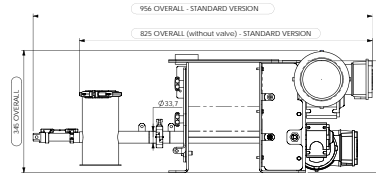
▶ The agitator rotates constantly or intermittently at adjustable frequency. This intermittent operation allows an effective feeding of delicate, friable products which might bridge unless gently and regularly activated.

▶ PNEUMATIC GATE



▶ The pneumatic gate stops the product flow and averts the raise of humidity level.

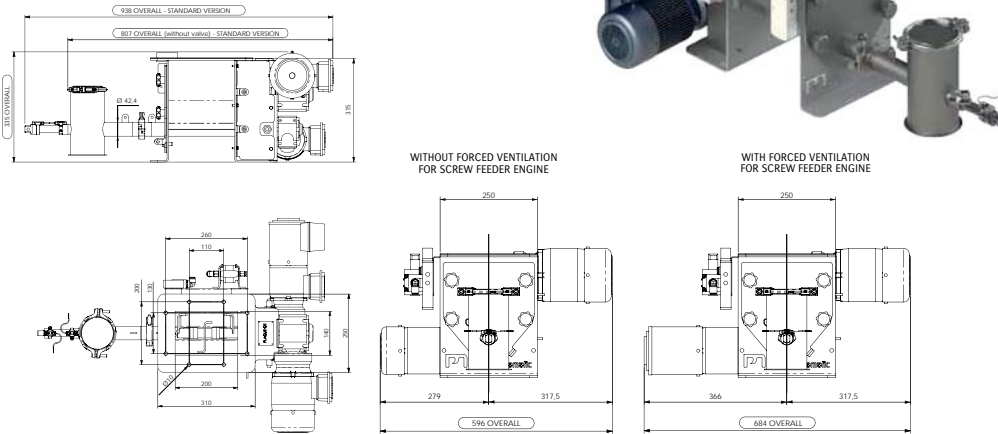
▶ FEEDER D10 (size and capacity)



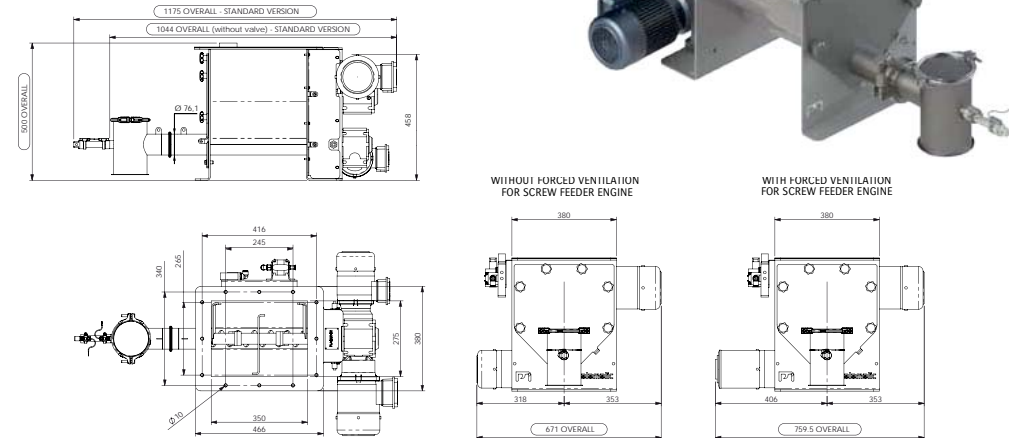
Feeder screws	Application	Gear ratios	Rotation speed	Theoretical throughput	Precision*
Type		1/...	rev./min.	l./h.	g.
Pigtail	Light sticky materials: flour, sugar, cocoa, pellets, granular products, light and slightly sticky oxides	10	138	142	5 g
		15 (Standard)	92	95	
		20	69	71	
		28	49	51	
Ribbon	Light materials, granular materials, pellets, PVC, polymers in pellets	40	35	35	3 g
		10	138	103	
		15 (Standard)	92	69	
		20	69	51	
With shaft	Heavy fluid materials, metallic granules	28	49	37	1 g
		40	35	25	
		10	138	97	
		15 (Standard)	92	64	
		20	69	48	
		28	49	34	
		40	35	24	

*Accuracy: The accuracy provided for a batch operating system with a metering device fitted with a pneumatic quick-closing valve. Flow control is provided by a PALAMATIC PROCESS automated system integrating the management of large and small fall velocities. Accuracy may vary depending on the "quality of implementation of the dosing or weighing hopper" (inequality of the structure and electronic grade).

FEEDER D11 (size and capacity)



FEEDER D12 (size and capacity)



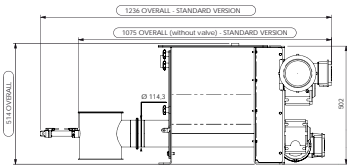
Feeder screws	Application	Gear ratios	Rotation speed	Theoretical throughput	Precision*
Type		1/...	rev./min.	L/h.	g.
	Light sticky materials: flour, sugar, cocoa, pellets, granular products, light and slightly sticky oxides	10	138	523	5 g
		15 (Standard)	92	348	
		20	69	261	
		28	49	186	
		40	35	130	
	Light materials, granular materials, pellets, PVC, polymers in pellets	10	138	380	3 g
		15 (Standard)	92	253	
		20	69	190	
		28	49	135	
		40	35	95	
	Heavy fluid materials, metallic granules	10	138	356	1 g
		15 (Standard)	92	237	
		20	69	178	
		28	49	127	
		40	35	89	

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Feeder screws	Application	Gear ratios	Rotation speed	Theoretical throughput	Precision*
Type		1/...	rev./min.	L/h.	g.
	Light sticky materials: flour, sugar, cocoa, pellets, granular products, light and slightly sticky oxides	10	138	1,438	10 g
		15 (Standard)	92	959	
		20	69	719	
		28	49	513	
		40	35	359	
	Light materials, granular materials, pellets, PVC, polymers in pellets	10	138	1,046	5 g
		15 (Standard)	92	697	
		20	69	523	
		28	49	373	
		40	35	261	
	Heavy fluid materials, metallic granules	10	138	1,273	1 g
		15 (Standard)	92	848	
		20	69	636	
		28	49	454	
		40	35	318	

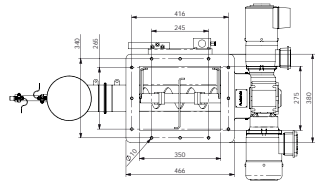
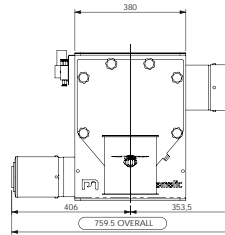
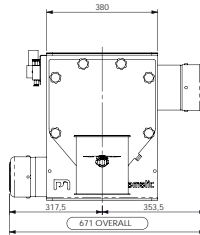
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FEEDER D13 (size and capacity)



WITHOUT FORCED VENTILATION FOR SCREW FEEDER ENGINE

WITH FORCED VENTILATION FOR SCREW FEEDER ENGINE



Feeder screws	Application	Gear ratios	Rotation speed	Theoretical throughput	Precision*
Type		1/...	rev./min.	L/h.	g.
 Pigtail	Light sticky materials: flour, sugar, cocoa, pellets, granular products, light and slightly sticky oxides	10	138	6,458	20 g
		15 (Standard)	92	4,305	
		20	69	3,229	
		28	49	2,306	
		40	35	1,614	
 Ribbon	Light materials, granular materials, pellets, PVC, polymers in pellets	10	138	4,696	15 g
		15 (Standard)	92	3,131	
		20	69	2,348	
		28	49	1,677	
		40	35	1,174	
 With shaft	Heavy fluid materials, metallic granules	10	138	5,029	10 g
		15 (Standard)	92	3,353	
		20	69	2,514	
		28	49	1,796	
		40	35	1,257	

*Accuracy: The accuracy provided for a batch operating system with a metering device fitted with a pneumatic quick-closing valve. Flow control is provided by a PALAMATIC PROCESS automated system integrating the management of large and small fall velocities. Accuracy may vary depending on the "quality of implementation of the dosing or weighing hopper" (inequality of the structure and electronic grade).

IMPACT OF PARTICULE SIZE

Material references	Floor (Type 55)	Sugar (cristal n°2)	Plastic granules
Granulometry in μm	100 μm	500 - 700 μm	2 - 5 mm
Product family	Fine	Crystal	Granules
Correction factor (feeding rate of the screw)	1.31	0.96	0.91

CALCULATION EXAMPLE OF RATES FOR CALCIUM CARBONATE

Customer data

Product to be metered	Calcium carbonate
Bulk density	0.7
Granulometry	70 μm
Product family	Fine
Type of coil	Screw with whaft
Correction factor	1.31
Wished actual flow rate	155 L/h.

Calculation formula

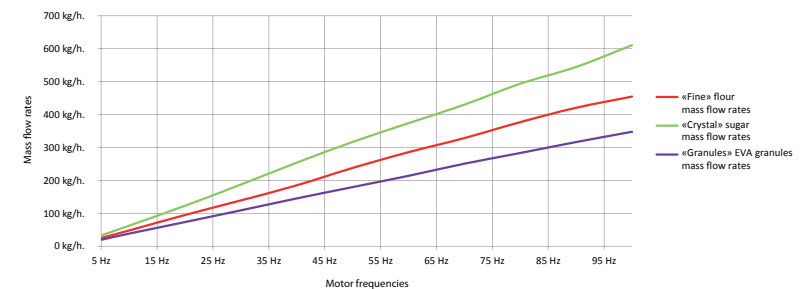
$$\text{Theoretical throughput} = \frac{\text{Actual flow rate}}{\text{Correction factor}} = \frac{155}{1.31} = 118 \text{ L/h.}$$

Result

Type of feeder	D11
Motor reducing ratio	1/28
Theoretical throughput	127 L/h.*

*See flow charts of the feeders

MASS FLOW RATES GRAPH WITH D11 FEEDER (PIGTAIL TYPE SCREW) BASED ON THE 3 FAMILIES



Screw Feeder

Weighing System



Capacity: 24 to 6,458 L/h.
Objectives: controlled feeding of materials

The batch feeding system guarantees an accurate weighing for each batch (granule or powder). The batch weighing provides a homogeneous and complete control of the product flows, a better accuracy and contributes to processing efficiencies.

TECHNICAL SPECIFICATIONS

Parts in contact with the material: stainless steel 304 L/316 L
Structure and bolts: stainless steel 304 L/316 L
Finishes of flange extremity: stainless steel 304 L/316 L
Base capacity: 50 to 65 litres



Homogenization tool

Feeding rotor

Load cells to ensure a constant weight

Dosing screw

Pneumatic closing valve of the filling tube

There is three types of weight feeders:

- **Weight feeder in loss-in-weight:** it provides the fastest and most accurate measurement and control of individual ingredients fed into a batch process
- **Gain-in-weight batching:** downstream the feeder, it doses and controls the weighing
- **Continuous weight feeder:** the feeder enables a continuous feeding by regulating its speed depending on the feeder loss weight to get a constant flow rate



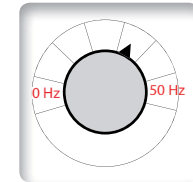
▶ **Load cells:** system of three load cells to control the quantity of introduced powder



▶ **Closing membrane** to cut off the product flow and avoid raise of humidity



▶ **Motor** dedicated to drive the dosing system



▶ **Inverter** to adjust through-puts

Advantages



The feeders D10, D11 D12 and D13 PALAMATIC PROCESS are compatible with the installation of servo load cells.

Models	D10	D11	D12	D13
Tube ext. Ø in mm	33.7	42.4	76.1	114.3

Dosing accuracy < to 1%

Options



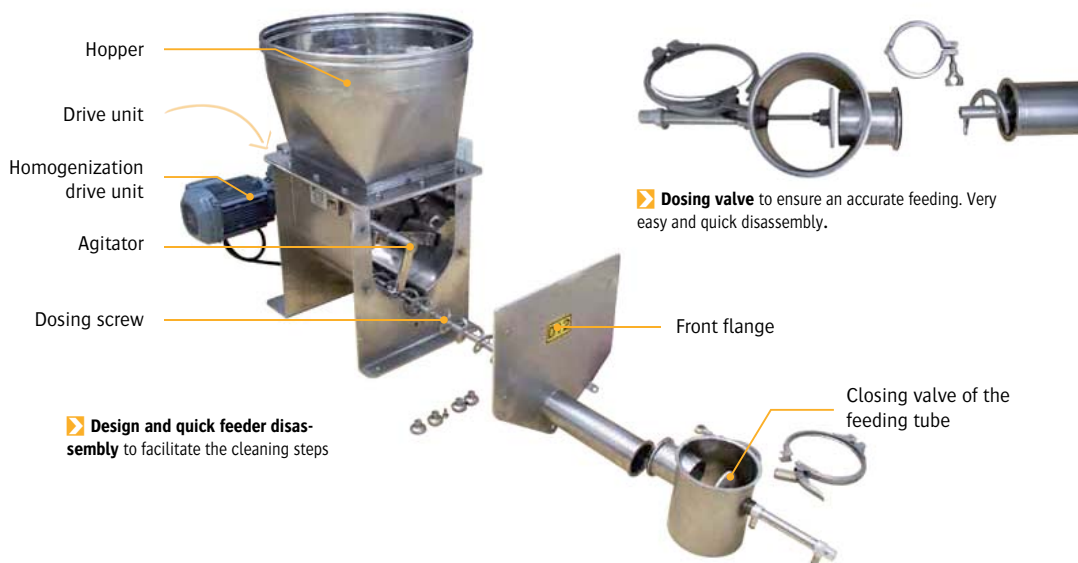
Sealed flexible connection without weighing interference



Local weighing display for direct information

▶ RAPID DISASSEMBLY (STANDARD)

Design allowing rapid disassembly of the feeder to facilitate cleaning phases. The standard design enables dismantling and provides easy access to all parts to perform the manual cleaning.



▶ Design and quick feeder disassembly to facilitate the cleaning steps

Mirror polished finishes that can be integrated for applications in food and cosmetics areas.



▶ EASYCLEAN VERSION

Some applications require frequent cleaning of the feeder either for changes of materials and/or due to constraints of allergens, pigments, etc... To respond to this industrial issue and in the context of offering sanitary equipment, PALAMATIC PROCESS developed the Easyclean option on its entire range of dosing. This Easyclean option enables quick dismantling of all parts of the dispenser without any use of tools and without supporting loads. This is guaranteed by the integration of rails and rollers on the flanges of the feeder.

