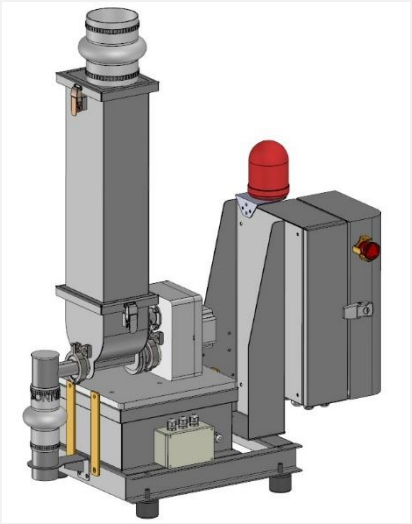
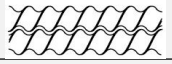
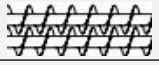
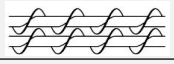
Technical Introduction



The T22 loss-in-weight feeder is suitable for metered feeding of highly viscous/sticky powdered raw materials that are difficult to flow.
T22 systems is suitable for continuous production processes. Such as mixing granulation, food and chemical production processes.
The optimized modular design can be fed both as a volumetric feed and as a Metered Loss-in-Weight feed material, so that the whole system can better adapt as per customer’ s processing process formula changes.
Based on the Loss-in-Weight principle, the T22 continuously monitors the flow rate and motor speed of the raw material and double closed-loop control, ensuring that the typical accuracy value is better than ±0.25%.
The T22 silo is made of stainless steel and the part in contact with the raw material is mirror polished. It’ s simple, quick disassembly and easy removal feature takes a very few minutes to clean material in the equipment, which reduces the cleaning time to minimum.
T22 comes with optimize design that provide different types of twin screws to push various sizes and characteristics of powders. The horizontal mechanical stirring module of the feeder can solve the problem of powdery raw materials with high viscosity and difficult flow
T22 has the single and double screw interchange function, providing a wider range of material feeding, both for Granule or particles and Powder in same feeder.
The T22 reducer adopts the latest optimized design of high-precision gear transmission, which is suitable for screw and horizontal agitator. The link provides integrated power to both mechanisms.
T22 has obtained the European CE safety design standard certification, electronic controller has undergone strict EMC Standard test.

Screw and Feeding range

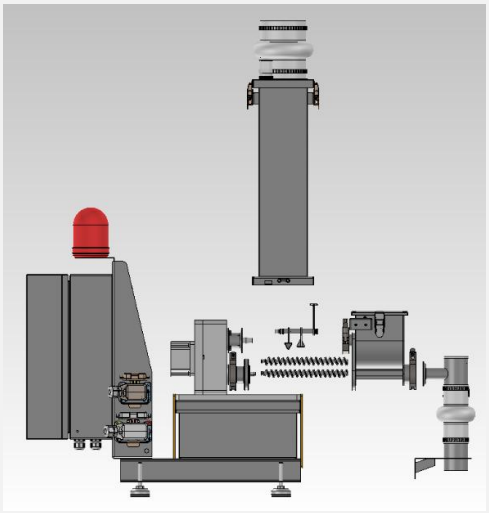
Note: The correct selection of screw is based on specific raw materials and has been fully tested to confirm. Different raw material characteristics determine the actual feeding range. If you need a specific and accurate feeding range, please provide us with raw materials, we can test and conform in our laboratory. The feeding data in the following table is a theoretical reference value and can only be used as a reference for selection.

	Twin concave Screw 	Twin concave Screw 	Twin auger screw 	Twin auger screw 	Screw Speed Range
Diameter×Pitch	18×05mm	20×16mm	20x12mm	20×24mm	
Small Pitch	1.2 - 12 dm^3/h	2.6 - 26 dm^3/h	--	--	25 – 250Rev/min
	0.5 - 5 dm^3/h	1.04 – 10.4 dm^3/h	--	--	10 – 100Rev/min
Big Pitch	--	--	4-40 dm^3/h	10 - 100 dm^3/h	25 –250Rev/min
	--	--	1.6-16 dm^3/h	4 – 40 dm^3/h	10 – 100Rev/min

Material	Screw	0.1	0.3	0.6	1	2	5	10	15	20	25	30	35	Kg/h
Antioxidant	1805B													
Antioxidant	2016B													
Antioxidant	2012A													
Antioxidant	2024A													
Additive Mixture	1805B													
Additive Mixture	2016B													
Additive Mixture	2012A													
Additive Mixture	2024A													

Standard Structure

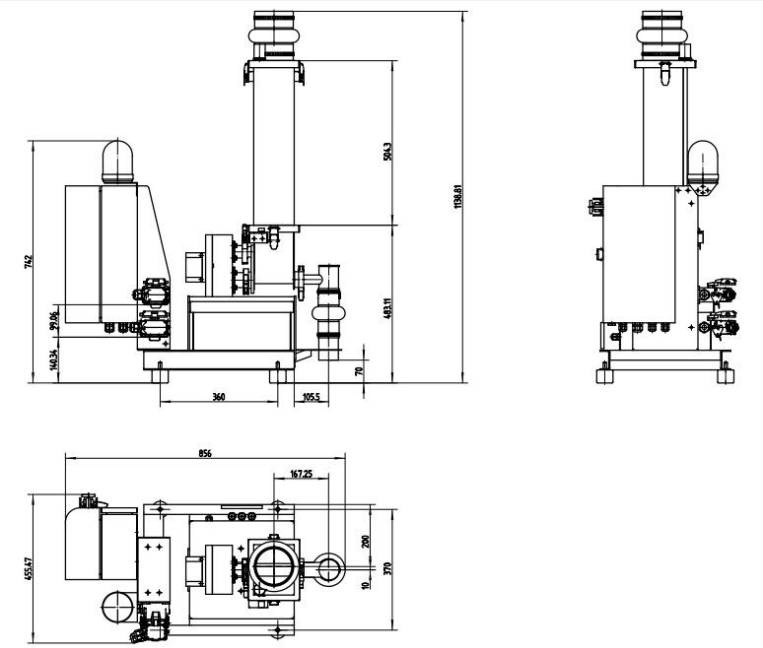
Inlet Soft Connecter:	D114mm Silicone Material
Dosing Hopper:	8L SUS304 (Standard)
	4L SUS304 (Selectable)
Feeding Chamber:	2.5L
Horizontal Agitator:	Detachable
Twin Screw:	D18/20mm
	SUS316 Stainless steel
Motor:	0.12kw, BLDC
Weighing Unit:	75Kg
	FTD Digital transmitter
Feed Tube:	D60mm
Outlet Soft Connecter:	D60mm Silicone Material



Design parameters

Material :	4K Stainless Steel Mirror
Sealing Parts:	Silicone or PTFE
Material Temperature :	≤160℃ (Standard)
Ambient Temperature :	0℃-45℃
Ambient Humidity :	≤80%
Protection Class :	IP54
Power Supply :	220V±10%, AC, 1P, 50Hz
Loading Power :	0.15kw (Max.)
Weight :	60kg
Exterior Color :	RAL7035

Mechanical Drawings



Non-Standard Design

Low-Speed Gearbox	With a range of less than 600g/hr, the maximum speed is reduced by 2.5 times
Silo Material	Available in stainless steel 316 with mirror polished interior
Explosion-Proof Design	Zone 21, Dust Explosion Proof，EXⅡDBT4 （Explosion Motor, Explosion load cell)
Manual Feeding	HR Manual Refilling Cover

Paid Spare Parts List

Material Name	Model Specifications	Part code
Inlet Soft Connecter	D114mm/ Silicone	413ISC00114S001I02
Outlet Soft Connecter	D60mm/ Silicone	413ISC00060S001I01
Exhaust Bag – 8L	HP32E-120-1PP	4110HP00032E1201PP
Silo Gaskets	L150mm*W180mm	414TVH000025003I01
Horizontal Agitator	TMHIV22-002-00-I03	414TMH00002200200I03
DC Motor	S90B120220A	430MDC120090220
DC Driver	FLDBLS-07	440DCD000750001
LIW Control Panel	EC-LW	4110ECLW0STM32000I02

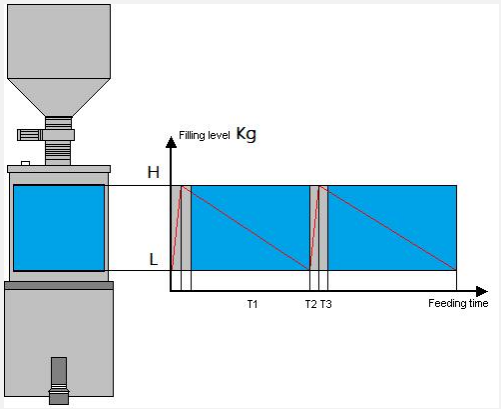
Associated Configuration

7" HMI Operation Controller	M240 HMI Operation Controller
12" HMI Operation Controller	M280 HMI Operation Controller
Communication Module	TS180 Modbus RTU ->Profinet
100L Refill Hopper	ICHS100AV – 100L With Vertical Agitator
100L Refill Hopper (25Kg Bag Feeding)	IBU25-100AV - 100L SUS304 With Vertical Agitator
Refill Valve	IBV100 - 100mm Butterfly Valve_
Refill Pipe	IDO114-100 – 114mm/L1M
Collection Hopper	BMI50
Connection Pipe	TCO114-100 – 114mm/L1M Between Collection Hopper and Extruder

Loss-In-Weight-Refill Control Time

Typical Refill Number as below form:

Typical Maximum Capacity	20Kg/hr
Diameter of Refill valve	100mm Butterfly valve
Volume of Dosing Hopper	8L
Bulk Density	0.4kg/l
Typical Refill Weight	2Kg
Refill Number	≤15 times/hour



Feeding Accuracy

Sampling Measurement	Usually take 15 samples and 60s for one sample (If need Special reqirement, please reference below accuracy data form for 5s/10s/15s/30s)
Feeding Range	15： 1 times screw
Linear Accuracy	±0.25%-0.5% at 60sec
Repeatability Accuracy	≤0.5% at 2 sigma, flow characteristics of material determine repeatability Accuracy

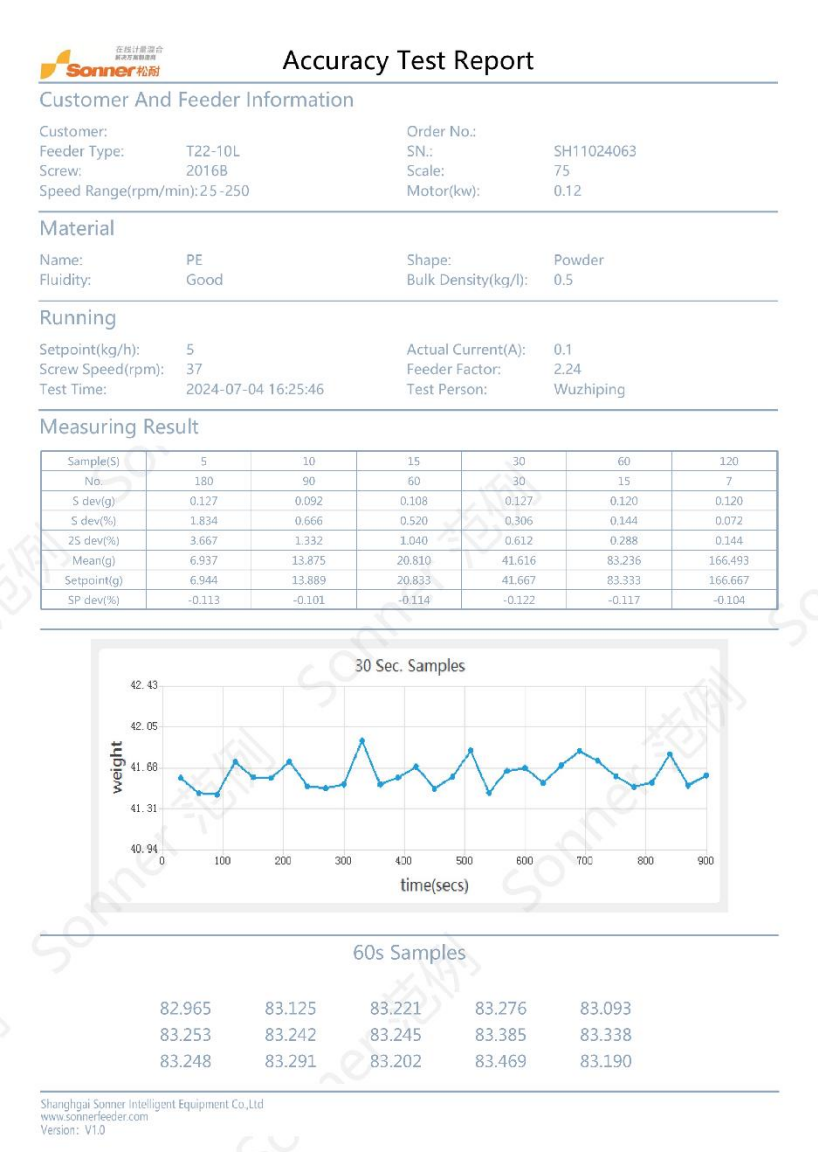
Repeatability Accuracy:

It is based on the standard sample variance, which describes the flowrate of the screw feeder in a period of time and the discrete situation of several flow samples in each sampling period. It is one of the important indicators to describe the repeatability error of the screw feeder. The repetition error can be quantified based on the standard deviation.

Linear Accuracy:

It describes the accuracy of each operating point with in the operating range of the feeder from the minimum federate to the maximum feed rate. That is the error between the actual feeding amount and the set amount in the whole range. Smaller the error higher is the linear accuracy of the feeder.

TFE22-2016B Typical Accuracy Testing Table



Accuracy Test Report

Customer And Feeder Information

Customer:		Order No.:	
Feeder Type:	T22-10L	SN.:	SH11024063
Screw:	2016B	Scale:	75
Speed Range(rpm/min):	25-250	Motor(kw):	0.12

Material

Name:	PE	Shape:	Powder
Fluidity:	Good	Bulk Density(kg/l):	0.5

Running

Setpoint(kg/h):	5	Actual Current(A):	0.1
Screw Speed(rpm):	37	Feeder Factor:	2.24
Test Time:	2024-07-04 16:25:46	Test Person:	Wuzhiping

Measuring Result

Sample(S)	5	10	15	30	60	120
No.	180	90	60	30	15	7
S dev(g)	0.127	0.092	0.108	0.127	0.120	0.120
S dev(%)	1.834	0.666	0.520	0.306	0.144	0.072
2S dev(%)	3.667	1.332	1.040	0.612	0.288	0.144
Mean(g)	6.937	13.875	20.810	41.616	83.236	166.493
Setpoint(g)	6.944	13.889	20.833	41.667	83.333	166.667
SP dev(%)	-0.113	-0.101	-0.114	-0.122	-0.117	-0.104

60s Samples

82.965	83.125	83.221	83.276	83.093
83.253	83.242	83.245	83.385	83.338
83.248	83.291	83.202	83.469	83.190

Shanghai Sonner Intelligent Equipment Co.,Ltd
www.sonnerfeeder.com
Version: V1.0

Weighing Accuracy

Weigh Module	SP4-75
Load cell Range	75Kg
Protection Class	IP65
Comprehensive Error	< ±0.03%
Weighing Resolution	1: 4'000'000
Operating Temperature	–10 to +60 °C
Weight Signal Output	Digital Output Signal Via RS485
Baud Rate Range	9600 – 38400 baud
Sampling time	6ms – 4500ms programmable
Voltage	24VDC
Communication distance	< 500m
Operational characteristics	10ms dynamic weighing scanning cycle; 32-bit DSP high-precision weight calculation
Interference characteristics	Intelligent assessment of impact disturbance, the impact of continuous vibration disturbance on feeding operation
Suspension characteristics	Double shock absorber anti-mechanical interference design

The second generation of Sonner has completely independent intellectual property rights of weighing technology, based on 32-bit. DSP arithmetic function chip circuit design and perfect dynamic scale.
Weighing software provides customers with highly dynamic weighing technology.